Design Cost Savings/ SMART Plans

June 14, 2013

11:00 AM

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E-Delivery
SMART Plans
Design Efficiencies
Design Cost Savings
3D Design
CIM
Practical Design

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 **T**ransportation (Plans)

b. **S**implification **M**easures **A**nd **R**esourceful **T**echniques (for Plans)

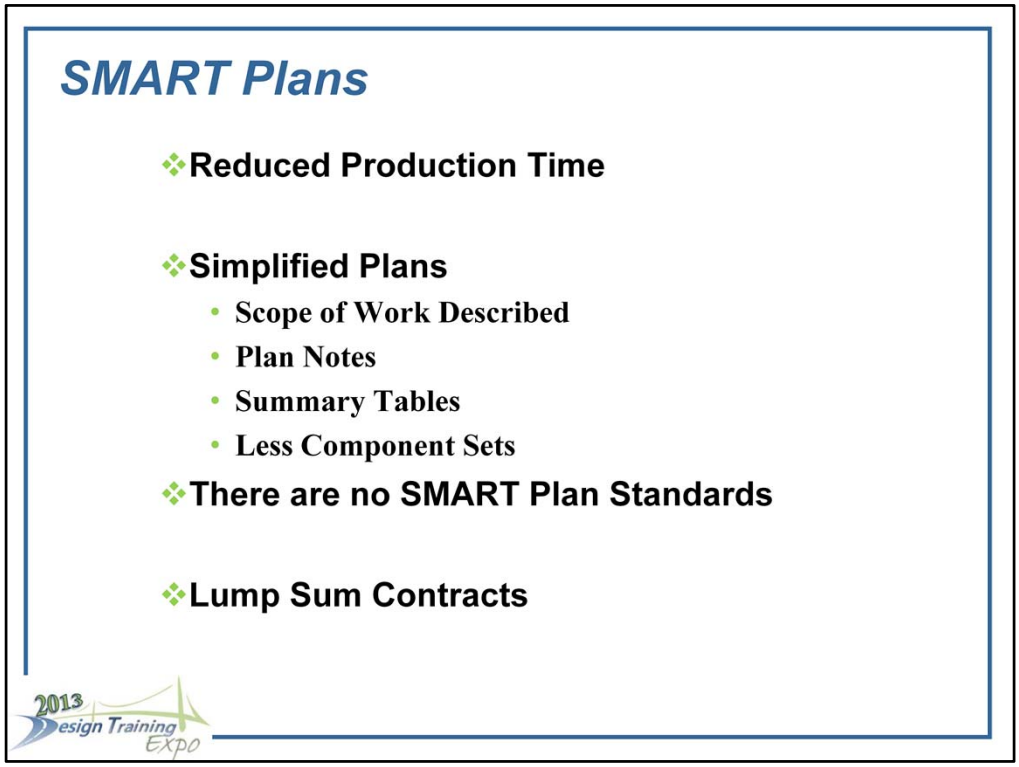
c. **S**aving **M**oney by **A**bstaining from **R**edundant and **T**edious (Plans)

d. All of the Above

Not Criteria but a Philosophy:

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

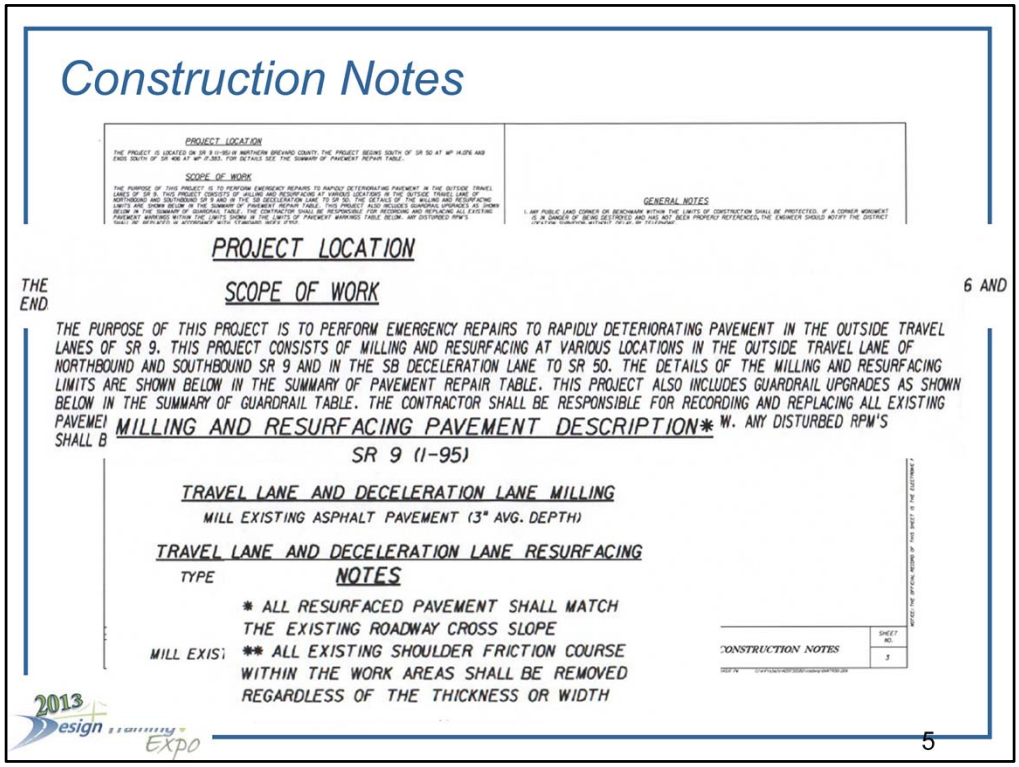
2013 Design Training Expo



Discuss SMART plans as an entire plans set versus SMART plans as components or sheets within more complex plans.

The objective of SMART plans is to eliminate or reduce plan sheets, cross section sheets, detail or component plans when the scope of work can be just as easily conveyed with a description or in tables.

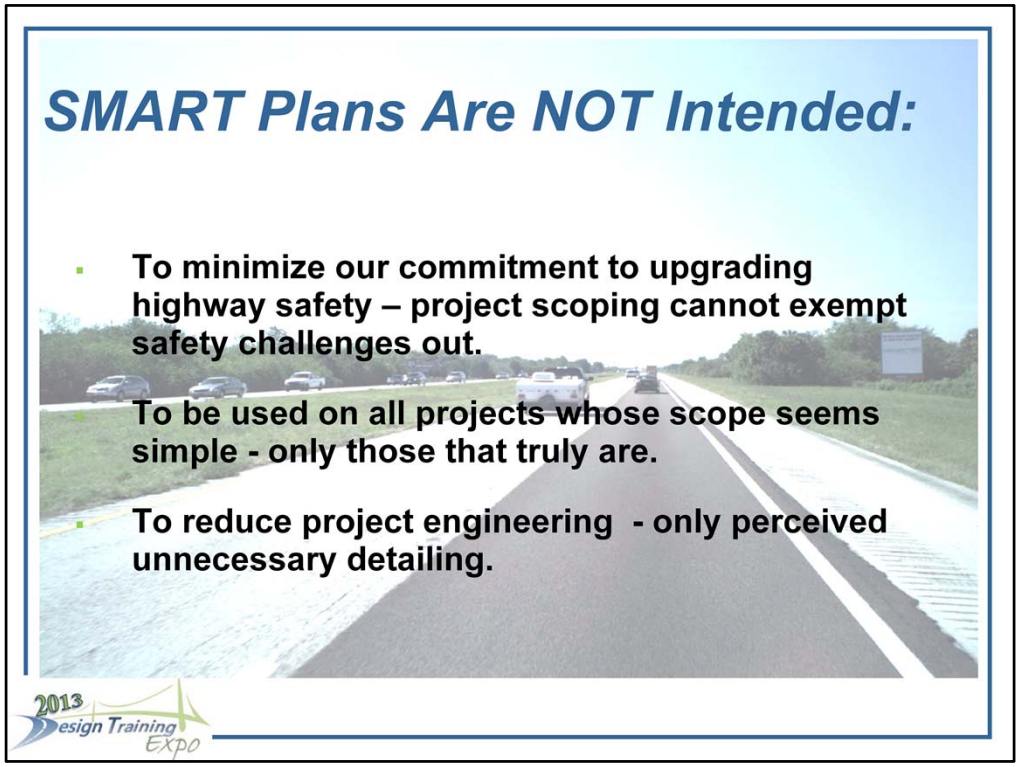
It is not a license to change plan sheets and formats without a reason. For example, the Key sheet for a set of SMART plans should contain the same information and look just about the same as any set of plans.



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

A. (Click) Project Location: a general description again tied to mile markers.
B. (Click) Scope of Work: A simple 6 sentence description of milling & resurfacing, guardrail upgrades & pavement marking activities.
C. 3 Tables listing the extent of each activity.
D. (Click) 4 Statements on what depth is the shoulder and lane milling, and what type and thickness the shoulder and lane paving shall be.
E. (Click) Two notes on matching existing cross-slope and milling off all shoulder friction course in the work areas shown.
F. 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.

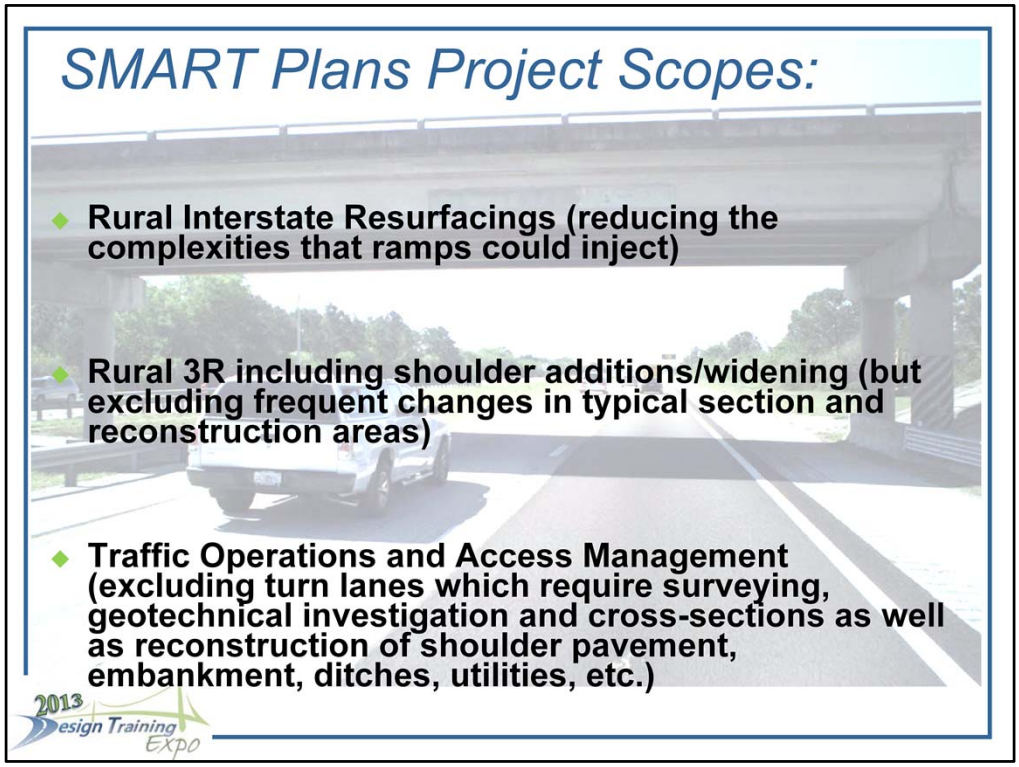


At this time we can better define what SMART Plans are NOT better than what they ARE.

1. <u>SMART Plans are not intended to reduce our commitment to upgrading highway safety</u>. 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. <u>SMART Plans are not intended to be used on all projects whose scope seems simple – only those that truly are.</u> 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. <u>SMART Plans are not intended to reduce project engineering</u>. The SMART Plans Process *requires the FDOT and the PM to be "smart" in scoping the work and allowing the EOR to be "smart"* 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.



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:

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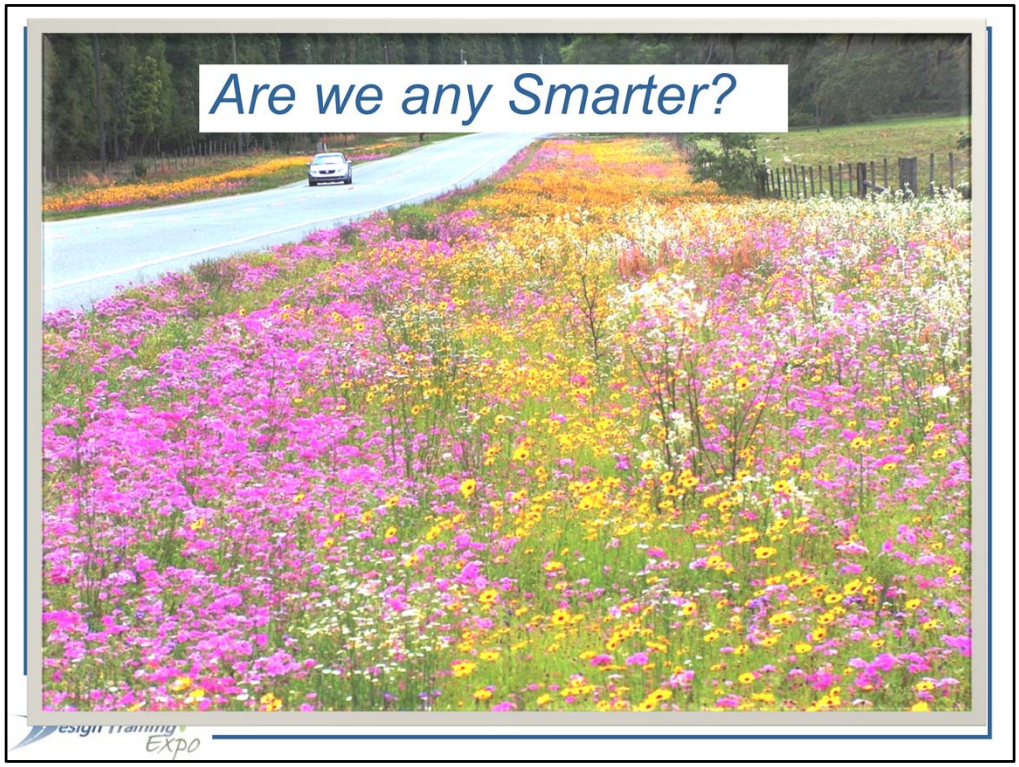
(read list):



The format we are calling SMART is not really a new concept. The Department actually did a similar thing (we called them letter sets) back in the late 80's. We used old plans to establish and alignment and milepost, no survey and 5-6 sheets of legal size paper. Many projects were done this way with little or no issues. Most Districts have done some form of reduced content plans for many years.

This is a really trying to reestablish some flexibility in the approach to developing plans and striking a balance with the requirements in the PPM between and what is necessary to construct the project.

The Districts have developed and let several SMART plan projects or have project planned for lettings. District 2 seems to be one of the leaders in this effort.

A couple dozen projects as SMART plans
Both in-house and consultant designs
Plans sets from 5 to 50 sheets
Project lengths from .5 to 7 miles

The “Philosophy” of SMART plans, along with Practical Design has lead the Department to revisit our approach to designing and preparing plans to look for ways to be innovative and bold.

Process:
requirements for producing a set of plans, submittal, approvals , etc
Details:
expectations in plans to provide adequate information to build the project (SMART Plans), lump sum, etc.
Effort:
how much information is enough, level of survey, subsurface investigation, etc.
Delivery:
Design-bid-build, Design-build, Public-Private-Partnerships, LAP, stand alone landscape contracts

Involves balancing risk and responsibility. Cost more to shift risk and responsibility to the designer. However, the potential cost in construction may far out weigh the added design costs.

Background: At the end of August, Secretary Prasad sent the following e-mail to the District Secretaries:
What do you think about an idea? I have identified Consultant Design and CEI contracts with significant amount of residual fees (total $310 million) that we can ask the consultants to identify cost savings to the tune of 5%. What this exercise entails is for them to identify ideas for us to realize these savings while clearly articulating what we will not be getting in return. Once we have these ideas, we can make the value judgment and decide what is not relevant/non-value added anymore and then seek the savings. We will have to coordinate with FHWA on any changes that we may want to make on Federal-aid projects.
My concept is that for the savings that we realize, we would share some of the savings with the consultants as an incentive but then incorporate these concepts into other on-going contracts and future contracts

About 2 dozen recently started Design Contract were reviewed and suggestions for savings made. (These are $3 to $8 million design contracts)

District input on context of reviews
The reviews were undertaken to identify tasks and/or levels of effort in the current contract scope of services that could be removed or reduced to achieve a 5% cost savings to the contract value. The intent was not to renegotiate contract prices/rates or reduce the scope of work for the project. As a result, the cost savings ideas are very much project/contract specific. Some of the savings are a

result of a reduction of services with an increased risk in the product to be provided to construction, some savings are for services that may be deferred or transferred to another party (FDOT or a Utility), and some of the savings ideas were not accepted as appropriate for the project.

District Design Engineers teamed up to provide recommendations based on cost savings ideas generated at the District level on individual projects. The team concentrated on ideas with the greatest potential savings for broader adoption on future contracts. After two team meetings, the following list of five items represents those with the greatest potential for across the board savings in design costs, most of which are related to documentation, plans presentation and format, and review efforts.

Five main cost savings recommendations with savings shared with consultants. Consider for implementation on new contracts as appropriate.

Ten additional cost savings that may be considered. Not viewed as having as much across the board application.

Reduction in Traffic Control Plan

This would be evaluated on a project specific basis, dependent on scope and work type. Updates/revisions to the PPM and Specifications would be needed, with a task team of Construction and Design members.

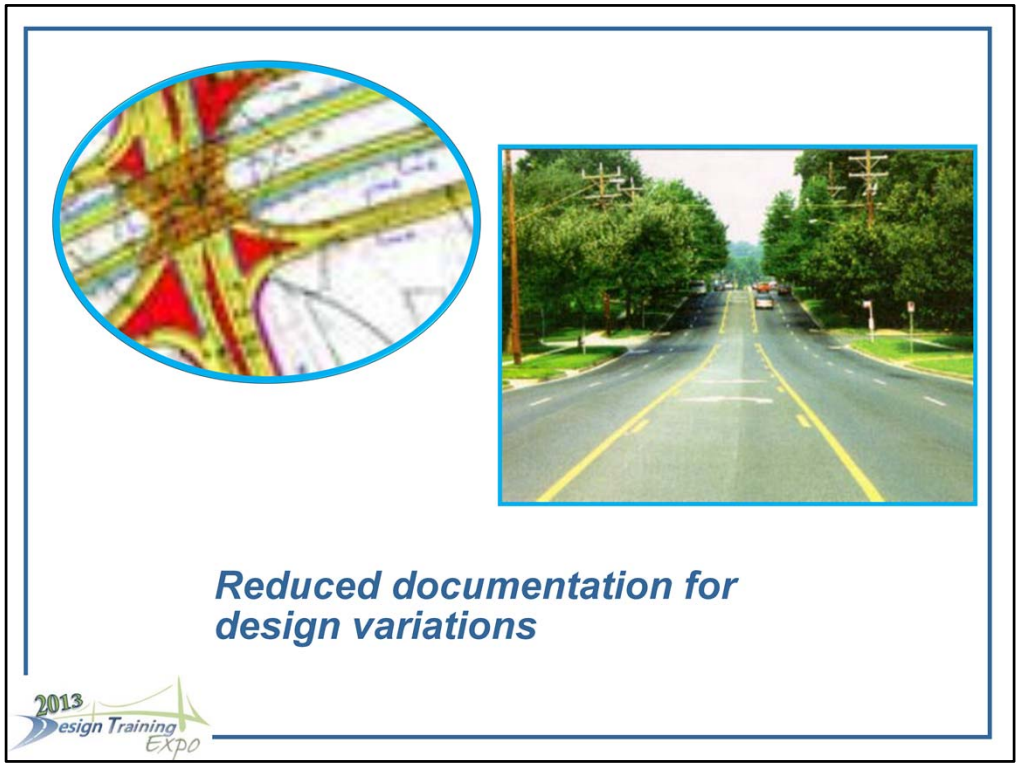
Reduction in phase submittals and/or plan reviews

Figure 2.1 Summary of Phase Submittals

ITEM	PHASE I	PHASE[a] II	PHASE III	PHASE IV
Key Sheet	P	P	C	F
Summary of Pay Items		P	C	F
Drainage Map	P	P	C	F
Interchange Drainage Map	P	P	C	F
Typical Section	P	C	C	F
Summary of Quantities			C	F
Summary of Drainage Structures		P	C	F
Optional Materials Tabulation		P	C	F
Project Layout	P	C	C	F
Roadway Plan-Profile	P	P	C	F
Special Profile	P	P	C	F
Back-of-Sidewalk Profile	P	C	C	F
Interchange Layout	P	P	C	F
Ramp Terminal Details		P	C	F
Intersection Layout/Detail	P	P	C	F
Drainage Structures		P	C	F
Three-Sided/Box Culvert Details			C	F
Lateral Ditch Plan-Profile		P	C	F
Lateral Ditch Cross Section		P	C	F
Retention/Detention Ponds		P	C	F
Cross Section Pattern		P	C	F
Roadway Soil Survey		P	C	F
Cross Sections	P	P	C	F
Stormwater Pollution Prevention Plan		P	C	F
Temporary Traffic Control Plans	P	P	C	F
Utility Adjustments		P	C	F
Selective Clearing and Grubbing		P	C	F
Developmental Design Standards		C	C	F
Mitigation Plans		P	C	F
Miscellaneous Structures Plans		P	C	F
Signing and Pavement Marking Plans		P	C	F
Signalization Plans		P	C	F
Intelligent Transportation System (ITS) Plans		P	C	F
Lighting Plans		P	C	F
Landscape Plans	P	P	C	F
Utility Work by Highway Contractor Agreement Plans			C	F
Computation Book			C	F
Contract Time			P	F

Status Key:
P - Preliminary
C - Complete but subject to change
F - Final

This would be evaluated on a project specific basis, dependent on scope and work type. Updates/revisions to the PPM, PM Handbook, and District QC/QA Plans would be needed. A task team is already studying this idea.



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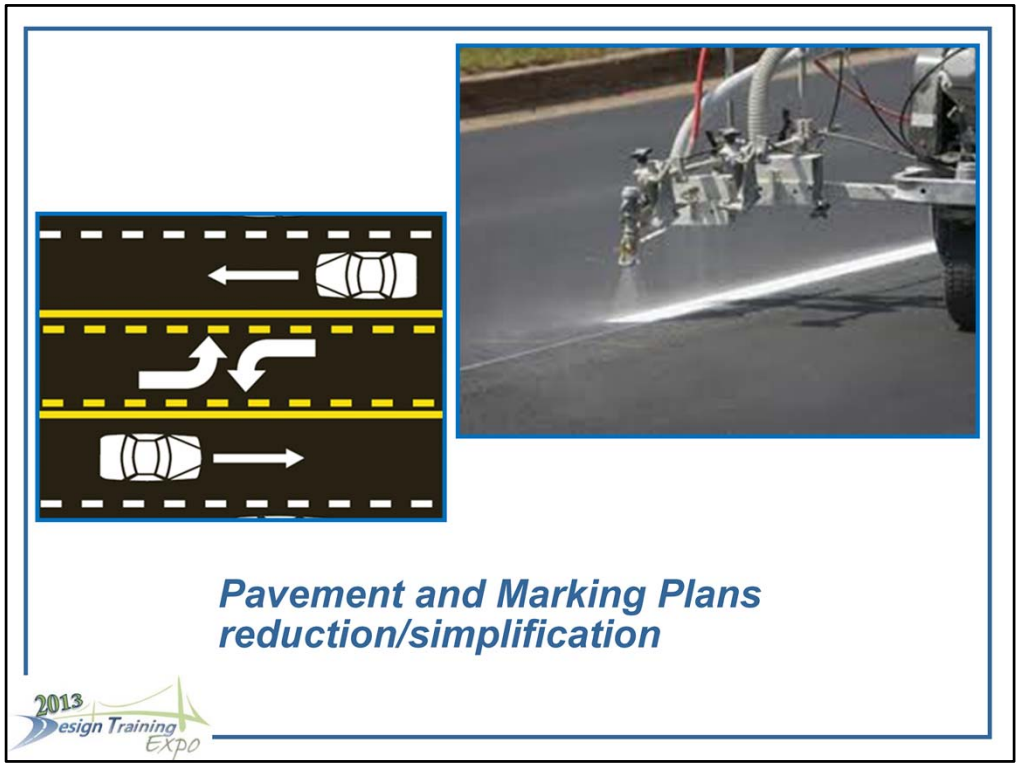
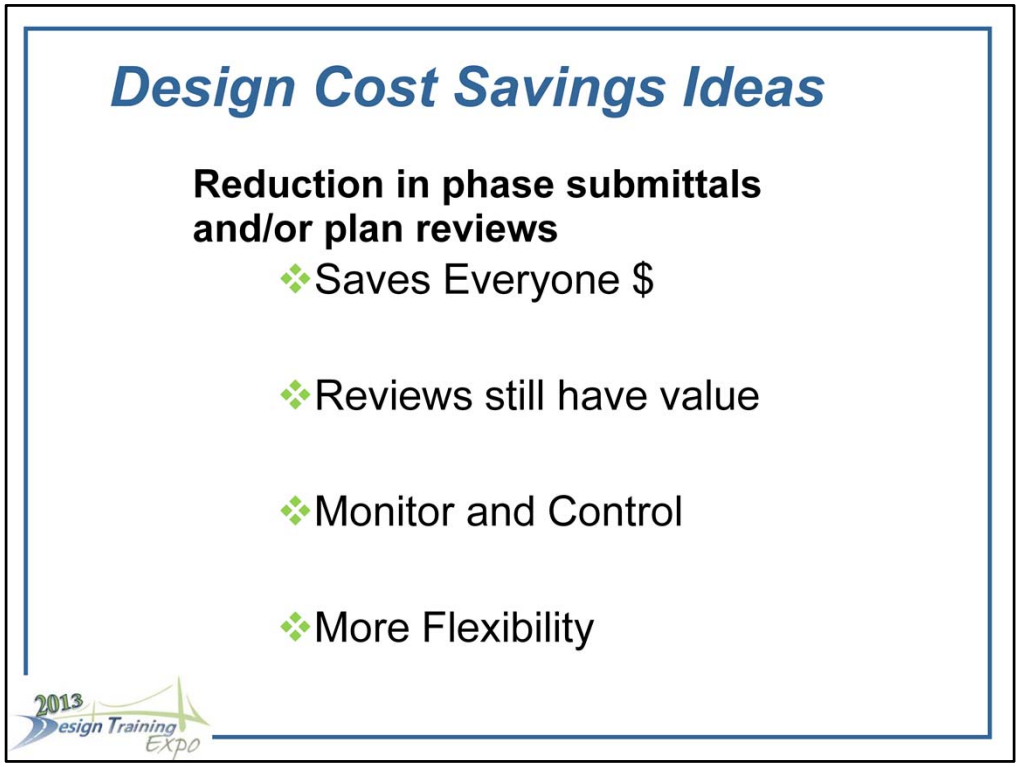


This would be evaluated on a project specific basis, dependent on scope and work type. Updates/revisions to the PPM would be needed, with a task team of Construction, Design and Maintenance members.

This is anticipated for broad implementation, with conditions to be determined. Updates/revisions to the PPM and CADD Manual would be needed. A task team is already studying this, piloting in D-2.



Total reported design cost savings to date is $1,750,000. Just under 2% of the total value of all contracts with any savings.

Reduction in phase submittals and/or plan reviews

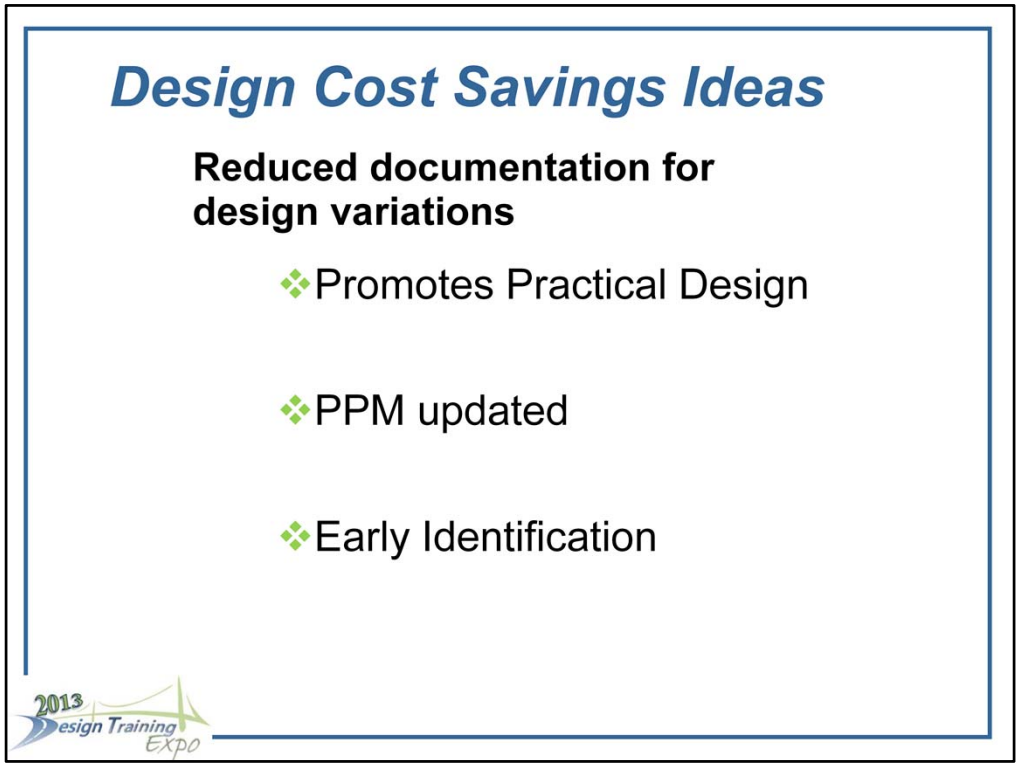
Most common cost savings realized.

This also saves FDOT money too.

Reviews were reduced but not eliminated. There is value to reviews, especially the constructability reviews, both a the project and program level. AASHTO/FHWA reports and recommendations on value of QA/QC and plan reviews

Need reviews for contract compliance and payment and Federal-aid stewardship

Evaluating better guidance and direction for PM to set the level of submittals and review and define as necessary in the scope of services



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Reduced documentation for design variations

Did not show up too often.

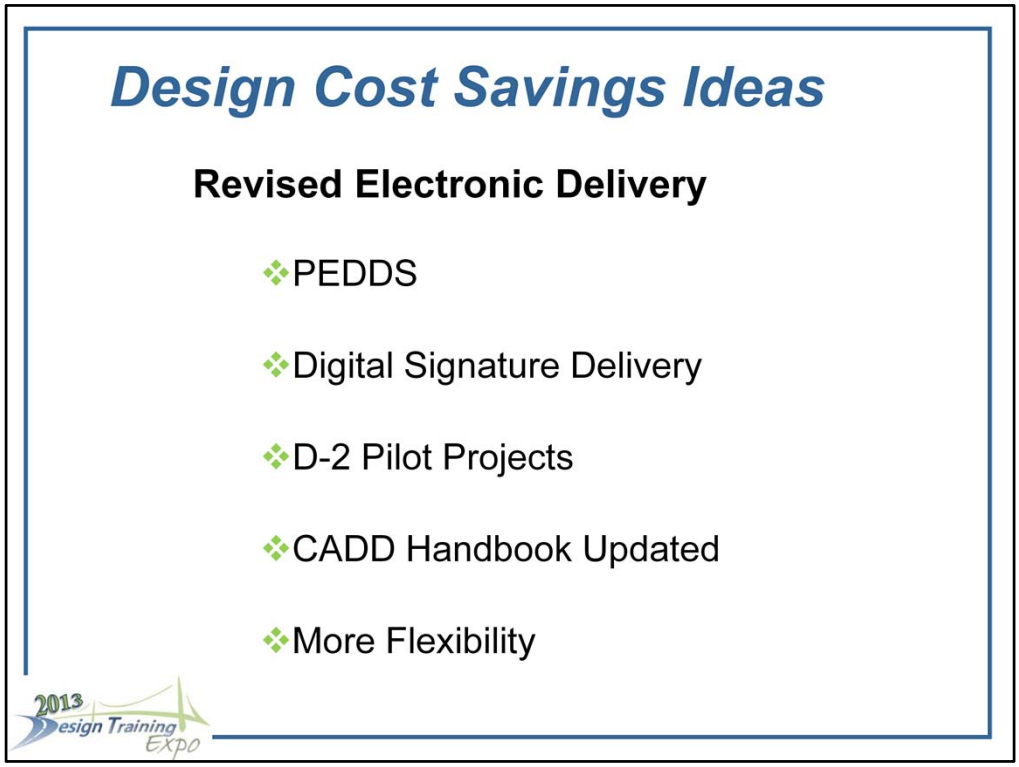
Promotes Practical Design

PPM updated to provide more flexibility for reduced documentation and approval

Known variations already

approved should be identified in project scope

The real cost savings is in the construction cost



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Revised Electronic Delivery

This only showed up a couple of times, and related to the elimination of the ED during phase reviews

Professionals Electronic Data Delivery System (PEDDS)

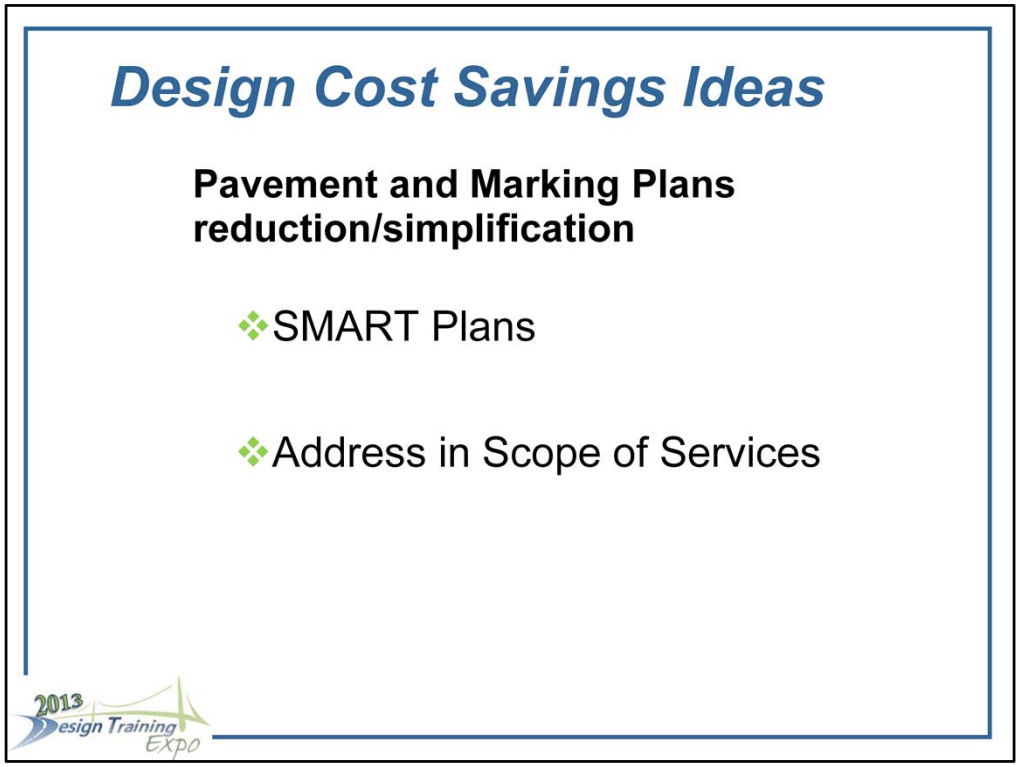
D2 has done several "Digital Delivery" projects so far...
6 Pilot Projects already let: 4 InHouse; 2 Consultant
Many more in the production pipeline
D-2 presentation on approach and cost savings earlier this morning in this room.

CADD Policy was published this May (CADD Production Criteria Handbook) which implements "Digital Delivery" as an option.

Other districts have started.

I think D2 is presenting theur findings (Time and cost savings) in their presentation

Firday at the EXPO ??



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Pavement and Marking Plans reduction/simplification

This savings was the second most common.

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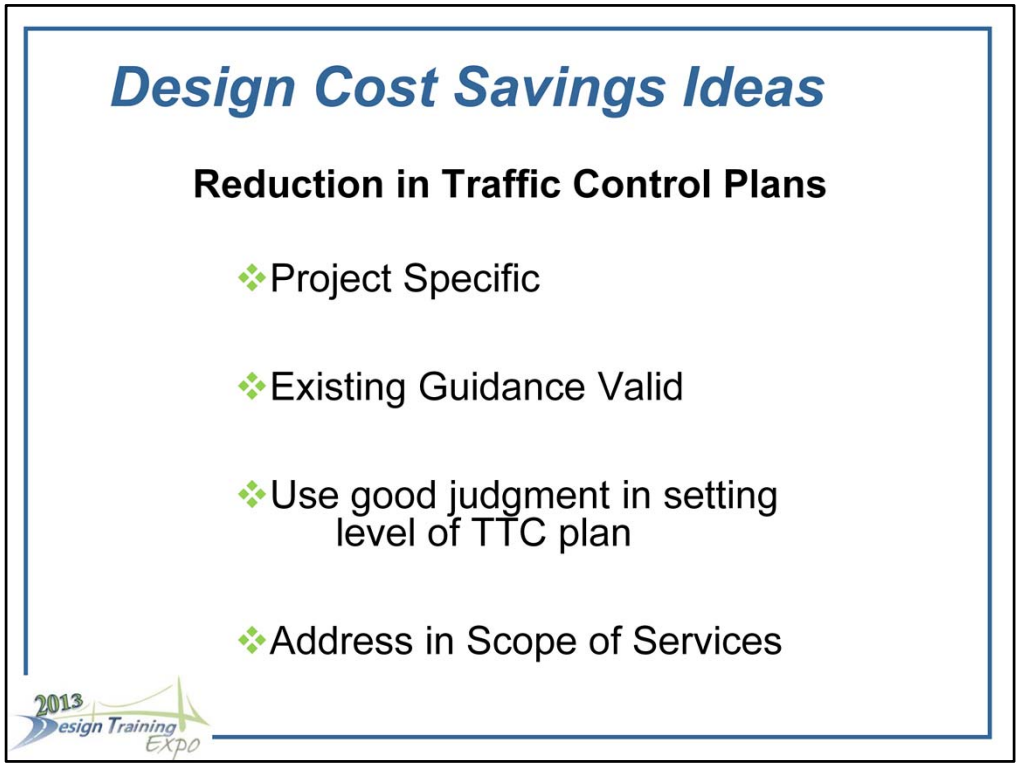

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Reduction in Traffic Control Plan (Temporary Traffic Control Plans TTC plan)
This was evaluated on a project specific basis, dependent on scope and work type. Updates/revisions to the PPM and design standards still need to be evaluated through a task team of Construction and Design members.

Not anticipated there is really too much need to be changed in PPM guidance of with standards. Take a practical design approach when specifying the TTC plan level, and in detailing the plan.

REDUCTION IN TRAFFIC CONTROL PLANS FROM LEVEL II TO LEVEL I PLUS. TRAFFIC CONTROL WILL BE REDUCED TO LEVEL I AREAS WHERE TYPICAL SECTIONS CAN BE UTILIZED. LEVEL II TRAFFIC CONTROL PLANS WILL STILL BE PROVIDED AT THE BEGINNING AND END OF PROJECT, ORGANIC SOILS MITIGATION TRANSITION AREAS, AND AT THREE MAJOR INTERSECTIONS.

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