Practical Design

Kurt Lieblong, PE, CVS

FDOT

Practical Design

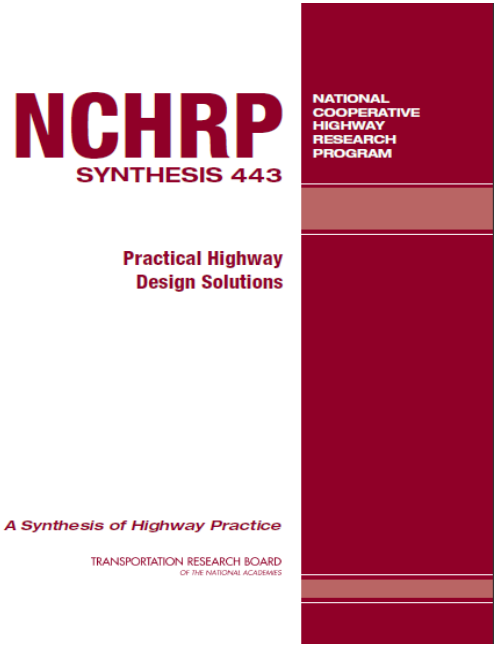
Overview and Background

- Practical Design Background
  - ✓ Other States
  - ✓ NCHRP Synthesis
- Practical Design at FDOT
- Practical Design Results to Date
- Future activities

What is Practical Design

"A project development philosophy whereby projects are scoped to meet the purpose and need, avoiding the desire to arbitrarily bring the facility up to a maximum level for all design elements. …using the savings for more projects"

NCHRP Synthesis 443



Evolution of Practical Design

- Began in Missouri – 2005
- 6 states Documented Policy
- 2012 NCHRP Synthesis Project
  - ✓ How states defined & implemented
  - ✓ Barriers & Lessons Learned
  - ✓ Practical Design vs Traditional
  - ✓ Relationships to other initiatives
  - ✓ Application of design exceptions

"Practical" States

- Missouri – 2005 Design
- Idaho – 2007 Solutions
- Kentucky – 2008 Solutions
- Kansas – 2009 Improvements
- Oregon – 2009 Design
- Utah – 2011 Design

"Practical" States

- "Building good projects everywhere – rather than perfect projects somewhere" - **Missouri**
- "Build cost-effective projects to achieve a good, safe and efficient transportation system" - **Idaho**
- "Consider and examine a range of approaches and determine which solution meets the purpose and need with least cost" - **Kentucky**
- "To maximize the use of available transportation funds, cost-effective solutions must be developed to meet project needs" - **Kansas**
- "Provide the **Right Projects**…at the **Right Time**…at the **Right Cost**…in the **Right Way"** - **Oregon**
- "Appropriately allocate limited resources to maximize system wide improvements**" - Utah**

Common Themes

Among all 6 Practical Design states

- Initiated program from a need to maximize existing funds
- Focused effort around a clearly defined “Purpose & Need” Statement
- Developed guidance or policy for Practical Design

Other States

NCHRP Synthesis 443

- **States considering Practical Design Policy**
  - **Alabama**
  - **Florida**
  - **New York**
  - **Washington**
  - **Wisconsin**

FDOT Practical Design

- Visit from “Practical” States @ January 2012 Executive Board
- List of items for 3R projects – March 2012
  - ✓ Items eliminated from all resurfacing projects
  - ✓ Items to remain in resurfacing projects
  - ✓ Items to remain in resurfacing projects at Engineer’s discretion
- Central Office reviews of Interstate 3R projects – Spring 2012
- Project Management Memo – August 2012

Results – Interstate RRR

- All Interstate RRR projects subject to Central Office review
  - ✓ Request plans around 90% (Phase III)
  - ✓ Review is comprehensive: Roadway, Structures, Signing & Pavement Marking, Signalization, etc.
  - ✓ Not based solely on the List of Optional Items – all items included in the design are subject to review
  - ✓ Process typically takes about 2-3 months.
  - ✓ Cost savings vs. Cost to redesign
- Timing is not ideal – goal is to implement during project scoping

Results – Interstate RRR

- Typical Questions or Comments
  - ✓ Project need is not immediately clear
    - Response should demonstrate need based on engineering data
    - "Because the manual says so" does not demonstrate a need
  - ✓ Was a variation/exception considered?
  - ✓ Were alternative improvements considered?
    - Mitigation strategies
  - ✓ The Department is willing to save even minor amounts of money

Results – Interstate RRR

- Cost Savings
  - ✓ Lettings May 2012 – October 2013
  - ✓ Reviewed 15 Interstate RRR projects
  - ✓ $4.2 million in cost savings
  - ✓ Approximately 6.5% of the projects' cost

- "Put more product out on the street"

Results – Interstate RRR

- Observations
  - ✓ Big ticket items = more opportunity for cost savings
    - Pavement
    - Structures
    - Drainage improvements
    - Fencing
    - Signing
  - ✓ Areas of focus:
    - Cross slope correction
    - Front slope correction
    - Sign replacement
    - Pavement thickness

Results – Arterial RRR

- Review Checklist
  - ✓ To be completed for every RRR project starting with September 2012 letting through March 2013
  - ✓ Submitted to Central Office Production Support
  - ✓ Optional items being included in RRR projects should be supported with engineering observations

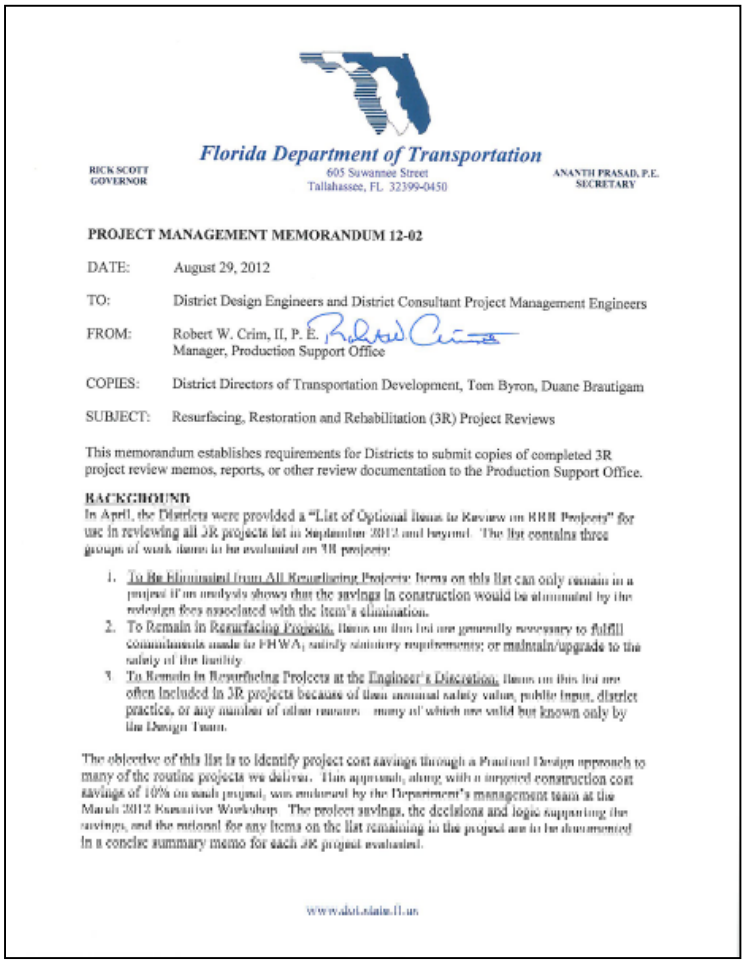
PART 1 – To Be Eliminated from All Resurfacing Projects

N/A	Not Included	Included	To Be Eliminated
☐	☐	☐	Milling and resurfacing of travel lanes in areas where the only deficiency is due to ride, typically due to manholes and utilities. (We have ride only projects that can be programmed to address manhole/utility issues.)
☐	☐	☐	Placing FC-5 in median crossovers of multi-lane, high-speed facilities (By policy, this practice is currently optional. Districts choose to pave crossovers to avoid complaints after construction.).
☐	☐	☐	Minor cross slope correction (see new PPM for flexibility).
☐	☐	☐	Minor super-elevation correction (see new PPM for flexibility).
☐	☐	☐	Continuous post-and-beam concrete bridge railing thrie-beam retrofits (when bridge railing has never been hit).
☐	☐	☐	Upgrade existing guide rail to picket rail when drop-off hazard is less than 5'-0" (continuous picket rail OK if drop-off hazard varies and at least 60" in height at some locations).
☐	☐	☐	Milling and resurfacing paved side streets beyond the return radius/right-of-way line unless needed for harmonization of public side streets (but not greater than 50').
☐	☐	☐	Barrier selection for aesthetic not safety reasons (e.g., choosing to install barrier wall instead of guardrail because it is more aesthetically pleasing. In addition, guardrail reduces g-forces experienced by drivers when impacted.).
☐	☐	☐	Rock bags for inlet protection in curb and gutter areas (see new Erosion and Sediment Control Manual).
☐	☐	☐	Cross drain extensions that are beyond shoulder standards but within the clear zone and have no significant crash history (determined by District Safety Engineer).
☐	☐	☐	Side drain end treatments outside the clear zone when not needed for a hydraulic purpose.
☐	☐	☐	Removing nonstandard drainage structures and slope protection that are still functioning.
☐	☐	☐	Side drain safety upgrades (within 30' of each other, replacing with pipe and a ditch bottom inlet).
☐	☐	☐	Replacing functional ditch pavement.
☐	☐	☐	Upgrade of functioning pedestrian detectors (push-buttons) with newer models (unless we are touching the ped heads/ped poles, then ADA kicks in).
☐	☐	☐	Upgrades at driveway flares when not required.
☐	☐	☐	Construction of curb ramps in areas without sidewalk.
☐	☐	☐	Enhanced landscaping.
☐	☐	☐	Patterned pavement crosswalks (unless the funding and maintenance of these are the local agency's responsibility).
☐	☐	☐	Project-wide sign replacement without evaluation.
☐	☐	☐	Repairing concrete spalls at curb inlets, MESs, headwalls, etc. (unless these create a hazard themselves).
☐	☐	☐	Mowing and litter removal on pavement only projects.
☐	☐	☐	Paving gore areas with FC-5.

Results – Arterial RRR

- Cost Savings 9/12 – 3/13
  - ✓ 47 projects submitted checklists
  - ✓ Total initial cost: $195.5 million
  - ✓ Cost savings: $3.9 million (2.0%)
- Individual Project Statistics
  - ✓ 23 of 47 reported no cost savings
  - ✓ Individual project savings ranged from $1,112 to $693,993

Project Management Memo



Florida Department of Transportation

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GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.
SECRETARY

PROJECT MANAGEMENT MEMORANDUM 12-02

DATE: August 29, 2012

TO: District Design Engineers and District Consultant Project Management Engineers

FROM: Robert W. Crim, II, P. E.
Manager, Production Support Office

COPIES: District Directors of Transportation Development, Tom Byron, Duane Brautigam

SUBJECT: Resurfacing, Restoration and Rehabilitation (3R) Project Reviews

This memorandum establishes requirements for Districts to submit copies of completed 3R project review memos, reports, or other review documentation to the Production Support Office.

BACKGROUND

In April, the Districts were provided a "List of Optional Items to Review on RRR Projects" for use in reviewing all 3R projects let in September 2012 and beyond. The list contains three groups of work items to be evaluated on 3R projects:

1. To Be Eliminated from All Resurfacing Projects: Items on this list can only remain in a project if an analysis shows that the savings in construction would be eliminated by the redesign fees associated with the item's elimination.
2. To Remain in Resurfacing Projects: Items on this list are generally necessary to fulfill commitments made to FHWA, satisfy statutory requirements, or maintain/upgrade to the safety of the facility.
3. To Remain in Resurfacing Projects at the Engineer's Discretion: Items on this list are often included in 3R projects because of their minimal safety value, public input, district practice, or any number of other reasons – many of which are valid but known only by the Design Team.

The objective of this list is to identify project cost savings through a Practical Design approach to many of the routine projects we deliver. This approach, along with a targeted construction cost savings of 10% on each project, was endorsed by the Department's management team at the March 2012 Executive Workshop. The project savings, the decisions and logic supporting the savings, and the rational for any items on the list remaining in the project are to be documented in a concise summary memo for each 3R project evaluated.

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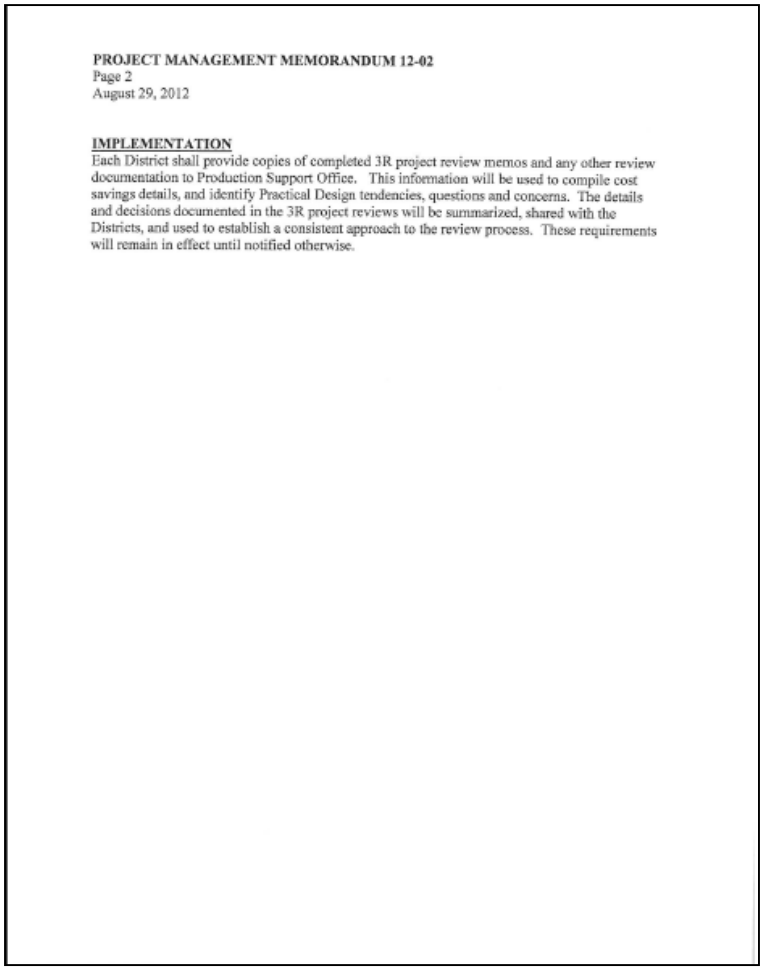


PROJECT MANAGEMENT MEMORANDUM 12-02
Page 2
August 29, 2012

IMPLEMENTATION

Each District shall provide copies of completed 3R project review memos and any other review documentation to Production Support Office. This information will be used to compile cost savings details, and identify Practical Design tendencies, questions and concerns. The details and decisions documented in the 3R project reviews will be summarized, shared with the Districts, and used to establish a consistent approach to the review process. These requirements will remain in effect until notified otherwise.

http://www.dot.state.fl.us/officeofdesign/CPR/ProjectScopingfor3RWork.shtm

2014 Design Training Expo

Project Management Memo

- List of Optional Items to review on 3R projects
  - ✓ To be eliminated from 3R projects
  - ✓ To remain in 3R projects
  - ✓ To remain in 3R projects at the Engineers discretion
- Target 10% Construction Cost Savings
- Document decisions, rational and savings in memo for each evaluated 3R project
- Submit 3R project review memo's to Production Support Office

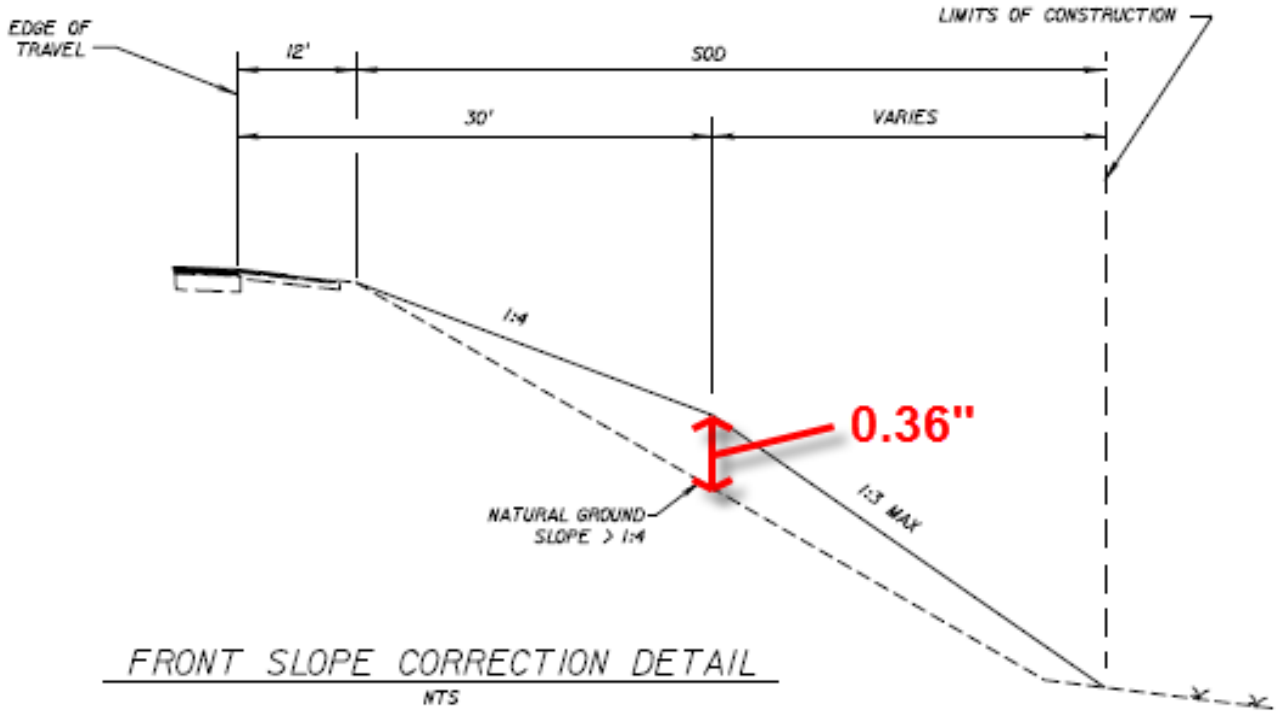
Case Studies

- Rural Interstate RRR – Front Slope Correction

SUMMARY OF FRONT SLOPE CORRECTION			
LOCATION		P	F
STA. TO STA.	SIDE	FILL (CY)	FILL (CY)
973+50.00 TO 974+50.00	LT.	29	
973+50.00 TO 974+50.00	RT.	6	
983+60.20 TO 984+30.00	RT.	1	
988+50.00 TO 989+50.00	RT.	2	
1089+50.00 TO 1090+50.00	LT.	35	
1089+50.00 TO 1090+50.00	RT.	17	
1108+50.00 TO 1109+50.00	RT.	1	
1111+50.00 TO 1112+50.00	RT.	3	
1114+50.00 TO 1115+50.00	RT.	6	
1118+50.00 TO 1119+50.00	RT.	3	
1165+50.00 TO 1166+50.00	LT.	4	
1165+50.00 TO 1166+50.00	RT.	20	
1168+50.00 TO 1169+50.00	LT.	1	
1168+50.00 TO 1169+50.00	RT.	16	
1177+50.00 TO 1178+50.00	RT.	4	
1178+50.00 TO 1179+50.00	LT.	1	
1180+50.00 TO 1185+50.00	LT.	62	
1180+50.00 TO 1184+50.00	RT.	23	
TOTAL FRONT SLOPE ESTIMATED FILL =		234	

Case Studies

- Rural Interstate RRR – Front Slope Correction
  - ✓ 18’ wide x 100’ long = 1800 ft^2 = 200 yd^2
  - ✓ 1 CY = 0.18 in average depth



Case Studies

- Rural Interstate RRR – Front Slope Correction
  - ✓ Eliminate areas ≤ 100 ft in length and ≤ 6 CY
  - ✓ Reduced number of cross slope correction areas from 18 to 7
  - ✓ $4,100 cost savings
  - ✓ Savings could be more due to the small volume of earthwork involved

Case Studies

- Rural Arterial RRR – Cross Slope Correction
  - ✓ 2-lane rural road w/ 16,600 vpd

CROSS SLOPE CORRECTION DATA TABLE

STATION	EXISTING TRAVEL LANES SB	EXISTING TRAVEL LANES NB	THICKNESS AT CONTROL POINT (IN) 'X'	'Z'	'Y'	TYPE SP OVERBUILD VOLUME (CY)	WEIGHT (TN) P	F
13+00.00	-0.030	-0.026	-	1.24	-	11.0	21.8	
15+00.00	-0.025	-0.033	-	1.36	-	2.0	4.0	
16+00.00	-0.029	-0.032	-	1.24	-	8.0	15.8	
17+00.00	-0.032	-0.032	-	1.12	-	8.0	15.8	
19+00.00	-0.024	-0.032	-	1.24	-	8.0	15.8	
25+00.00	-0.018	-0.043	-	1.84	-	8.0	15.8	
26+00.00	-0.024	-0.042	-	1.36	-	22.0	43.6	
28+00.00	-0.022	-0.033	-	1.48	-	8.0	15.8	
33+00.00	-0.021	-0.015	-	1.60	-	2.0	4.0	
34+00.00	-0.020	-0.011	-	2.68	-	13.0	25.7	
40+00.00	-0.031	-0.023	-	1.24	-	1.0	2.0	
41+00.00	-0.025	-0.035	-	1.84	-	22.0	43.6	
43+00.00	-0.029	-0.031	-	1.12	-	1.0	2.0	
45+00.00	-0.035	-0.038	-	1.24	-	33.0	65.3	
46+00.00	-0.026	-0.040	-	1.36	-	20.0	39.6	
47+00.00	-0.017	-0.043	-	2.08	-	20.0	39.6	
48+00.00	-0.015	-0.051	-	2.32	-	24.0	47.5	
49+00.00	-0.013	-0.047	-	1.84	-	22.0	43.6	
50+00.00	-0.017	-0.047	-	2.08	-	20.0	39.6	
51+00.00	-0.020	-0.052	-	2.68	-	28.0	55.4	
52+00.00	-0.035	-0.043	-	1.24	-	28.0	55.4	
53+00.00	-0.039	-0.048	-	1.60	-	24.0	47.5	
54+00.00	-0.030	-0.047	-	2.08	-	26.0	51.5	
55+00.00	-0.031	-0.047	-	2.56	-	30.0	59.4	
56+00.00	-0.040	-0.045	-	1.48	-	30.0	59.4	
57+00.00	-0.030	-0.040	-	1.24	-	13.0	25.7	
61+00.00	-0.029	-0.012	-	-	1.00	30.0	59.4	
63+00.00	-0.025	-0.010	-	-	1.00	37.0	73.3	
65+00.00	-0.019	-0.012	-	3.40	-	9.0	17.8	

CROSS SLOPE CORRECTION DATA TABLE (CONTINUED)

STATION	EXISTING TRAVEL LANES SB	EXISTING TRAVEL LANES NB	THICKNESS AT CONTROL POINT (IN) 'X'	'Z'	'Y'	TYPE SP OVERBUILD VOLUME (CY)	WEIGHT (TN) P	F
66+00.00	-0.024	-0.013	-	3.28	-	24.0	47.5	
70+00.00	-0.030	-0.031	-	1.48	-	6.0	11.9	
61+00.00	-0.029	-0.012	-	-	1.00	30.0	59.4	
63+00.00	-0.025	-0.010	-	-	1.00	37.0	73.3	
65+00.00	-0.019	-0.012	-	3.40	-	9.0	17.8	
66+00.00	-0.024	-0.013	-	3.28	-	24.0	47.5	
70+00.00	-0.030	-0.031	-	1.48	-	6.0	11.9	
71+00.00	-0.032	-0.025	-	1.12	-	24.0	47.5	
76+00.00	-0.030	-0.026	-	1.24	-	11.0	21.8	
77+00.00	-0.025	-0.033	-	1.36	-	19.0	37.6	
78+00.00	-0.029	-0.032	-	1.24	-	13.0	25.7	
79+00.00	-0.032	-0.032	-	1.12	-	14.0	27.7	
82+00.00	-0.024	-0.032	-	1.24	-	4.0	7.9	
83+00.00	-0.018	-0.043	-	1.84	-	22.0	43.6	
84+00.00	-0.024	-0.042	-	1.36	-	28.0	55.4	
85+00.00	-0.022	-0.033	-	1.48	-	26.0	51.5	
86+00.00	-0.021	-0.015	-	1.60	-	19.0	37.6	
87+00.00	-0.020	-0.011	-	2.68	-	15.0	29.7	
88+00.00	-0.031	-0.023	-	1.24	-	13.0	25.7	
89+00.00	-0.025	-0.035	-	1.84	-	10.0	19.8	
92+00.00	-0.029	-0.031	-	1.12	-	8.0	15.8	
97+00.00	-0.035	-0.038	-	1.24	-	8.0	15.8	
104+00.00	-0.026	-0.040	-	1.36	-	6.0	11.9	
105+00.00	-0.017	-0.043	-	2.08	-	15.0	29.7	
106+00.00	-0.016	-0.051	-	2.32	-	20.0	39.6	
107+00.00	-0.013	-0.047	-	1.84	-	19.0	37.6	
108+00.00	-0.017	-0.047	-	2.08	-	24.0	47.5	
109+00.00	-0.020	-0.052	-	2.68	-	26.0	51.5	
110+00.00	-0.035	-0.043	-	1.24	-	20.0	39.6	

CROSS SLOPE CORRECTION DATA TABLE (CONTINUED)

STATION	EXISTING TRAVEL LANES SB	EXISTING TRAVEL LANES NB	THICKNESS AT CONTROL POINT (IN) 'X'	'Z'	'Y'	TYPE SP OVERBUILD VOLUME (CY)	WEIGHT (TN) P	F
111+00.00	-0.039	-0.048	-	1.60	-	22.0	43.6	
112+00.00	-0.030	-0.047	-	2.08	-	24.0	47.5	
113+00.00	-0.031	-0.047	-	2.56	-	26.0	51.5	
114+00.00	-0.040	-0.045	-	1.48	-	24.0	47.5	
115+00.00	-0.030	-0.040	-	1.24	-	19.0	37.6	
116+00.00	-0.029	-0.012	-	-	1.00	15.0	29.7	
117+00.00	-0.025	-0.010	-	-	1.00	15.0	29.7	
118+00.00	-0.019	-0.012	-	3.40	-	12.0	23.8	
124+00.00	0.000	-0.039	-	4.72	-	17.0	33.7	
124+06.54	0.012	-0.040	-	4.74	-	2.0	4.0	
124+56.54	0.014	-0.032	-	3.76	-	17.0	33.7	
125+06.54	0.019	-0.038	-	3.40	-	10.0	19.8	
128+06.54	0.034	-0.044	-	4.12	-	61.0	120.8	
131+06.54	0.025	-0.038	-	2.56	-	72.0	142.6	
134+06.54	0.031	-0.045	-	3.52	-	67.0	132.7	
137+06.54	0.029	-0.043	-	2.80	-	73.0	144.5	
140+06.54	0.037	-0.045	-	4.48	-	89.0	176.2	
143+06.54	0.035	-0.045	-	4.48	-	106.0	209.9	
143+24.32	0.035	-0.045	-	4.72	-	6.0	11.9	
143+74.32	0.029	-0.040	-	5.56	-	17.0	33.7	
144+24.32	0.025	-0.041	-	6.52	-	38.0	75.2	
145+00.00	0.015	-0.028	-	6.64	-	30.0	59.4	
146+00.00	-0.014	-0.020	-	5.11	-	20.0	39.6	
147+00.00	-0.013	-0.014	-	3.52	-	11.0	21.8	
152+00.00	-0.019	-0.005	-	5.15	-	22.0	43.6	
155+00.00	-0.016	-0.012	-	4.36	-	15.0	29.7	
						TOTAL	3429.3	

TRANSITION
FULL SUPER
TRANSITION

Case Studies

- Rural Arterial RRR – Cross Slope Correction
  - ✓ Only correcting cross slope < 1.5% or > 3.0%
  - ✓ District used engineering judgment to decide to correct cross slope
    - High speed facility (design speed = 55 mph)
    - High truck percentage (%T = 12%)
    - Crash history (129 crashes and 4 fatalities over 5 years)
    - Unique vehicle mix (truckers, commuters, agricultural)
    - Existing deficiencies for shoulder width and guardrail clearance that will not be corrected

Case Studies

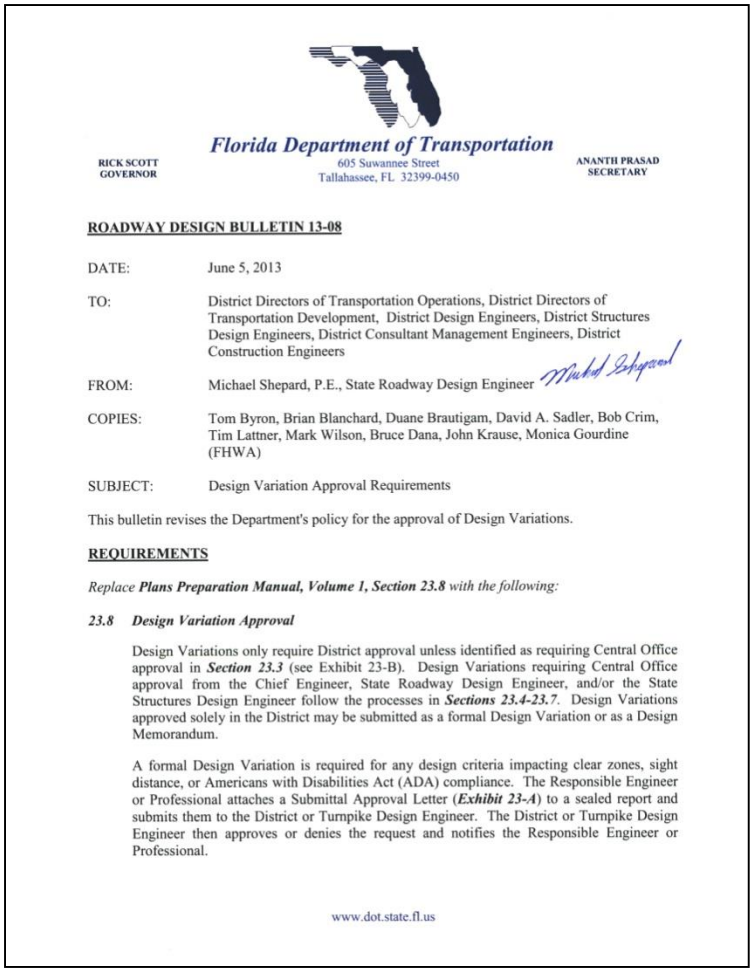
- Rural Interstate RRR – Overhead Sign Replacement
  - ✓ Replace 28 overhead cantilever signs
  - ✓ Existing signs were constructed around 2001-2002 (only ten years old!)
  - ✓ 2007: New LRFD requirements
  - ✓ Scope: Upgrade signs
  - ✓ Practical Design review question: “Why are sign structures being replaced?”
  - ✓ 25 of the 28 sign structures were not replaced
  - ✓ $1.9 million cost savings

FHWA Guidance on Design Exceptions

"We encourage State DOT's and local agencies to consider using design exceptions as a useful tool to achieve a design that balances project and user needs, performance, cost, environmental implications, and community values. State DOT's or local authorities must evaluate, approve and, document design exceptions."

Effective Oct 1, 2012, All NHS projects under Map-21 must meet FHWA approved standards or receive approved Design Exceptions.

Design Variations



Florida Department of Transportation

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GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

ANANTH PRASAD
SECRETARY

ROADWAY DESIGN BULLETIN 13-08

DATE: June 5, 2013

TO: District Directors of Transportation Operations, District Directors of Transportation Development, District Design Engineers, District Structures Design Engineers, District Consultant Management Engineers, District Construction Engineers

FROM: Michael Shepard, P.E., State Roadway Design Engineer

COPIES: Tom Byron, Brian Blanchard, Duane Brautigam, David A. Sadler, Bob Crim, Tim Lattner, Mark Wilson, Bruce Dana, John Krause, Monica Gourdine (FHWA)

SUBJECT: Design Variation Approval Requirements

This bulletin revises the Department's policy for the approval of Design Variations.

REQUIREMENTS

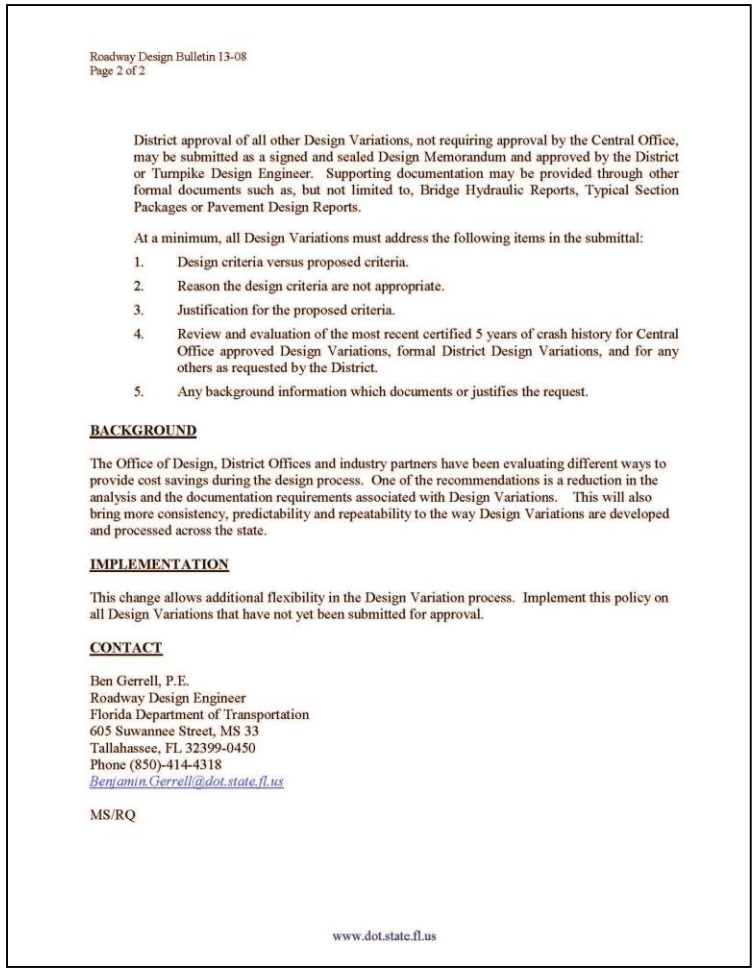
*Replace **Plans Preparation Manual, Volume 1, Section 23.8** with the following:*

23.8 Design Variation Approval

Design Variations only require District approval unless identified as requiring Central Office approval in ***Section 23.3*** (see Exhibit 23-B). Design Variations requiring Central Office approval from the Chief Engineer, State Roadway Design Engineer, and/or the State Structures Design Engineer follow the processes in ***Sections 23.4-23.7***. Design Variations approved solely in the District may be submitted as a formal Design Variation or as a Design Memorandum.

A formal Design Variation is required for any design criteria impacting clear zones, sight distance, or Americans with Disabilities Act (ADA) compliance. The Responsible Engineer or Professional attaches a Submittal Approval Letter (***Exhibit 23-A***) to a sealed report and submits them to the District or Turnpike Design Engineer. The District or Turnpike Design Engineer then approves or denies the request and notifies the Responsible Engineer or Professional.

www.dot.state.fl.us



District approval of all other Design Variations, not requiring approval by the Central Office, may be submitted as a signed and sealed Design Memorandum and approved by the District or Turnpike Design Engineer. Supporting documentation may be provided through other formal documents such as, but not limited to, Bridge Hydraulic Reports, Typical Section Packages or Pavement Design Reports.

At a minimum, all Design Variations must address the following items in the submittal:

1. Design criteria versus proposed criteria.
2. Reason the design criteria are not appropriate.
3. Justification for the proposed criteria.
4. Review and evaluation of the most recent certified 5 years of crash history for Central Office approved Design Variations, formal District Design Variations, and for any others as requested by the District.
5. Any background information which documents or justifies the request.

BACKGROUND

The Office of Design, District Offices and industry partners have been evaluating different ways to provide cost savings during the design process. One of the recommendations is a reduction in the analysis and the documentation requirements associated with Design Variations. This will also bring more consistency, predictability and repeatability to the way Design Variations are developed and processed across the state.

IMPLEMENTATION

This change allows additional flexibility in the Design Variation process. Implement this policy on all Design Variations that have not yet been submitted for approval.

CONTACT

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MS/RQ

FDOT Practical Design

- Changes to Practical Design Task Team
  - ✓ Kurt Lieblong, Project Review
  - ✓ Michael Shepard, Roadway Design
  - ✓ Bob Crim, Production Support
  - ✓ John Fowler, Roadway Design
  - ✓ Sean Masters, Project Review

FDOT Practical Design

- Changes to Practical Design Task Team
  - ✓ Kurt Lieblong, Project Review
  - ✓ Jeremy Fletcher, Roadway Design
  - ✓ Bob Crim, Production Support
  - ✓ Robert Lopes, Roadway Design
  - ✓ Sean Masters, Project Review
- Central Office position with emphasis on implementation of Practical Design
- Changes to Variation Process

FDOT Practical Design

- Review NCHRP report
- Review policies of all 6 documented states
- 9 Common Features
- Districts continue to document “practical design” on 3R projects – 12/13 DDE Meeting
- Develop FDOT Policy – Approved 6/3/2014
- Develop Guidelines for 3R projects - Draft

Common Features

- Properly defined scope of work
- Focused on achieving “Purpose & Need”
- Encourage use of Design Exceptions & Variations
- Develop & evaluate design alternatives
- Encourage “outside the box” thinking

Common Features

- Consider surroundings of each project
- Consider life cycle costs
- Do not shift burden to maintenance
- Collaborative solutions

Policy

FDOT

Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.
SECRETARY

POLICY

Effective: June 3, 2014
Office of Design
Topic No.: 000-625-016-a

PRACTICAL DESIGN

It is the policy of the Florida Department of Transportation (Department) to use a Practical Design approach on transportation projects and activities *for all modes appropriate to scale, cost, location, and schedule.*

The objective of Practical Design is to maximize improvements to the transportation system by focusing resources on improvements that deliver the highest return on investment. The Practical Design philosophy requires critical thinking and sound engineering judgment to achieve the best system improvements, while maintaining a safe and efficient transportation system. The Department will maximize the value received for every dollar spent by evaluating multiple design options, encouraging group collaboration, considering all costs, analyzing bold and innovative techniques, and ensuring that all improvements fulfill the purpose and need of the project while supporting the overall vision for the corridor.

Ananth Prasad, P.E.
Secretary

Policy

The Department will maximize the value received for every dollar spent by evaluating multiple design options, encouraging group collaboration, considering all costs, analyzing bold and innovative techniques, and ensuring that all improvements fulfill the purpose and need of the project while supporting the overall vision for the corridor.

- **Focused on Purpose & Need**
- **Develop & evaluate design alternatives**
- **Encourage “outside the box” thinking**
- **Consider surroundings of each project**
- **Consider Life Cycle Costs**
- **Collaborative solutions**

Value Engineering

- Performed by a multi-disciplined team
- Performed on large or complex projects
- VE looks for solutions to satisfy a project's basic function at the lowest life cycle cost without compromising safety or performance.

Similar philosophy

Purpose & Need ⟹ Basic Function

Future Activities

- Continue regular meetings
- Complete & publish Guidelines for 3R
- Complete review of District scoping processes
- QA activities on 3R scoping

Thank You

2014 Design Training Expo