

# INDOT Policy, Design Manual and Procedure Updates

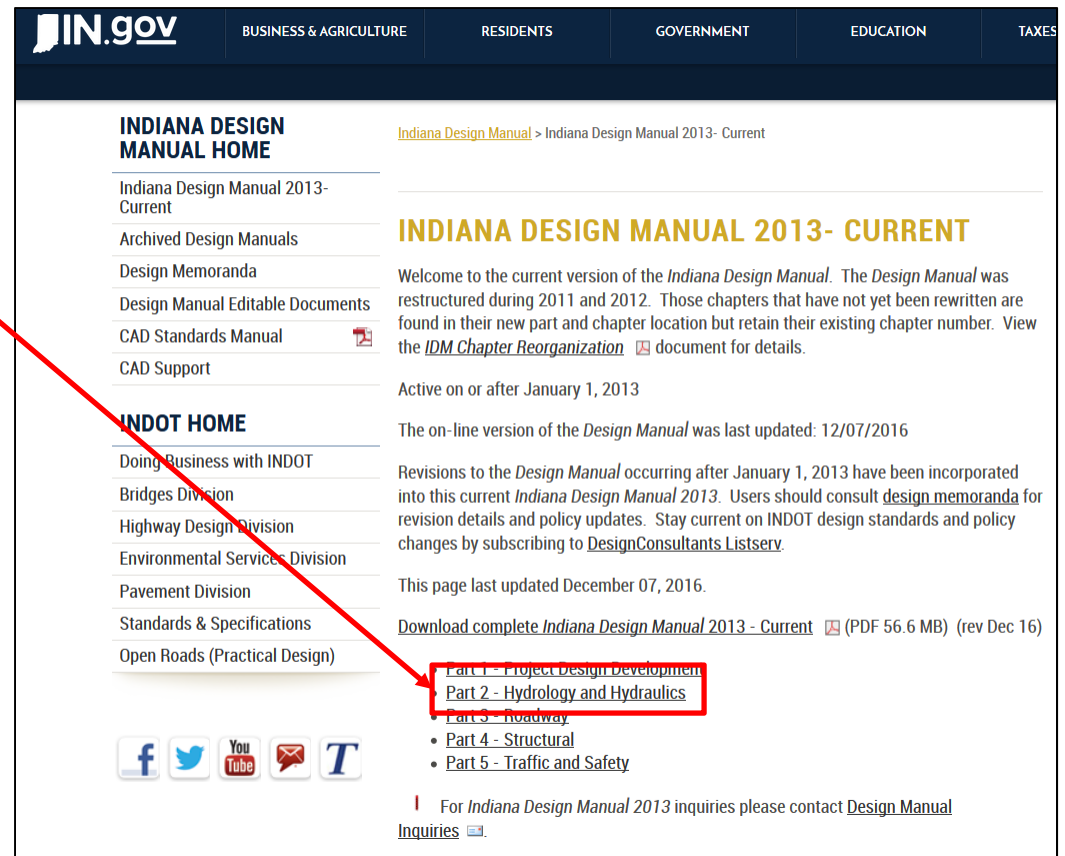
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February 7, 2017



# Updates to the IDM

## Where to find the most up-to-date design standards?

Part 2 is Hydrology and Hydraulics



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### INDIANA DESIGN MANUAL 2013- CURRENT

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Active on or after January 1, 2013

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This page last updated December 07, 2016.

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• Part 4 - Structural
• Part 5 - Traffic and Safety

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# Updates to the IDM

## Where to find the most up-to-date design standards?

Part 2 is Hydrology  
and Hydraulics

Find it at:

[http://www.in.gov/indot/design\\_manual/design\\_manual\\_2013.htm](http://www.in.gov/indot/design_manual/design_manual_2013.htm)

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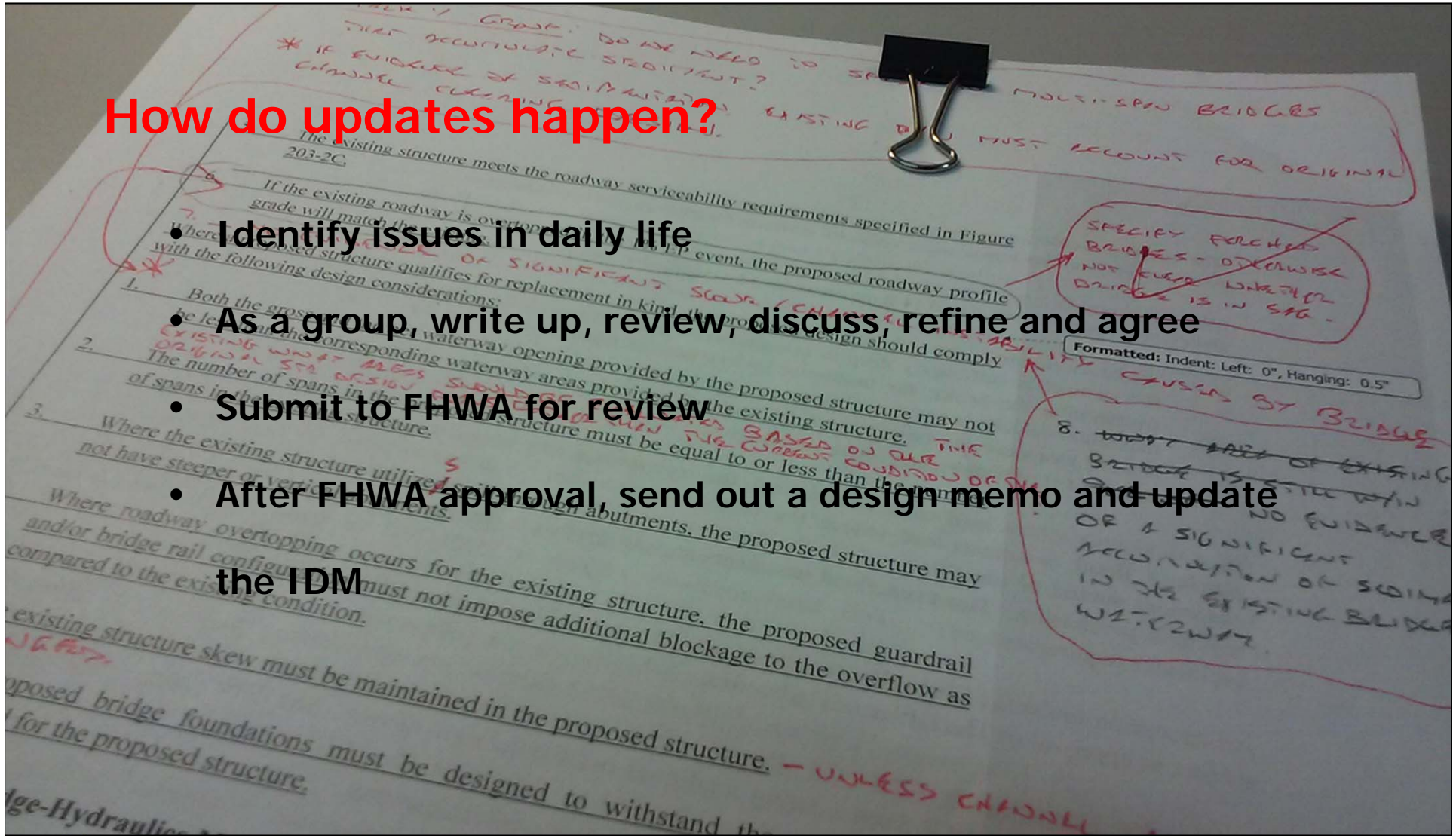
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# Updates to the IDM

## How do updates happen?

- Identify issues in daily life
- As a group, write up, review, discuss, refine and agree
- Submit to FHWA for review
- After FHWA approval, send out a design memo and update the IDM



# Updates to the IDM

## Updates completed in 2016

- **Adjustments to the replacement in kind policy**  
Section 203-2.02(02)3
- **Requirement to include semi-smooth pipe as an option**  
Section 203-2.02(13)
- **Updates and additions to temporary erosion and sediment control** Section 205



# Updates to the IDM

**Updates Anticipated for 2017** (Already submitted to FHWA)

## Culverts:

- Replacement in kind...



# Updates to the IDM

**Updates Anticipated for 2017** (Already submitted to FHWA)

Culverts:

- 



# Updates to the IDM

## Updates Anticipated for 2017 (Already submitted to FHWA)

### Culverts:

- Flexibility on culvert backwater at any site
- Additional criteria to meet the intention of 1 foot of backwater
- A new culvert cannot be smaller than the existing culvert





# Updates to the IDM

## Updates Anticipated for 2017 (Already submitted to FHWA)

### Bridges:

- Also have flexibility on backwater
- Based on evaluating existing conditions



# Updates to the IDM

## Updates Anticipated for 2017 (Already submitted to FHWA)

### Bridges:

- Clarifying standards for freeboard



# Updates to the IDM

## Updates Anticipated for 2017 (Already submitted to FHWA)

### Storm Drainage Design:

- Inlet clogging factor
- Flanking inlets



# Updates to the IDM

## Updates Anticipated for 2017 (Already submitted to FHWA)

### Culvert Cover:

- New set of standard drawings – pipe type and size

3" x 1" CORRUGATED ALUMINUM ALLOY PIPE-ARCH (RIVETED OR LOCK SEAM) HEIGHT OF COVER LIMITS (ft)													
CORNER RADIUS (in.)	SPAN (in.)	RISE (in.)	AREA (sft)	THICKNESS (in.)									
				0.060		0.075		0.105		0.135		0.164	
				MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
8 (Min.) 18 3/4 (Typ.)	60	46	15.6			1.1	20.8	1.1	20.8	1.1	20.8	1.1	20.8
9 (Min.) 20 3/4 (Typ.)	66	51	19.3			1.1	20.9	1.1	20.9	1.1	20.9	1.1	20.9
12 (Min.) 22 7/8 (Typ.)	73	55	23.2			1.1	20.8	1.1	20.8	1.1	20.8	1.1	20.8
14 (Min.) 20 7/8 (Typ.)	81	59	27.4					1.2	17.1	1.2	17.1	1.2	17.1
14 (Min.) 22 5/8 (Typ.)	87	63	32.1					1.2	17.3	1.2	17.3	1.2	17.3
16 (Min.) 24 3/8 (Typ.)	95	67	37.0							1.2	17.1	1.2	17.1
16 (Min.) 26 1/8 (Typ.)	103	71	42.4							1.2	16.9	1.2	16.9
18 (Min.) 27 3/4 (Typ.)	112	75	48.0									1.3	16.5



# Updates to the IDM

## So, where to from here?

- Road School presentation
- Current changes may be finalized soon...
- **More changes to come!**



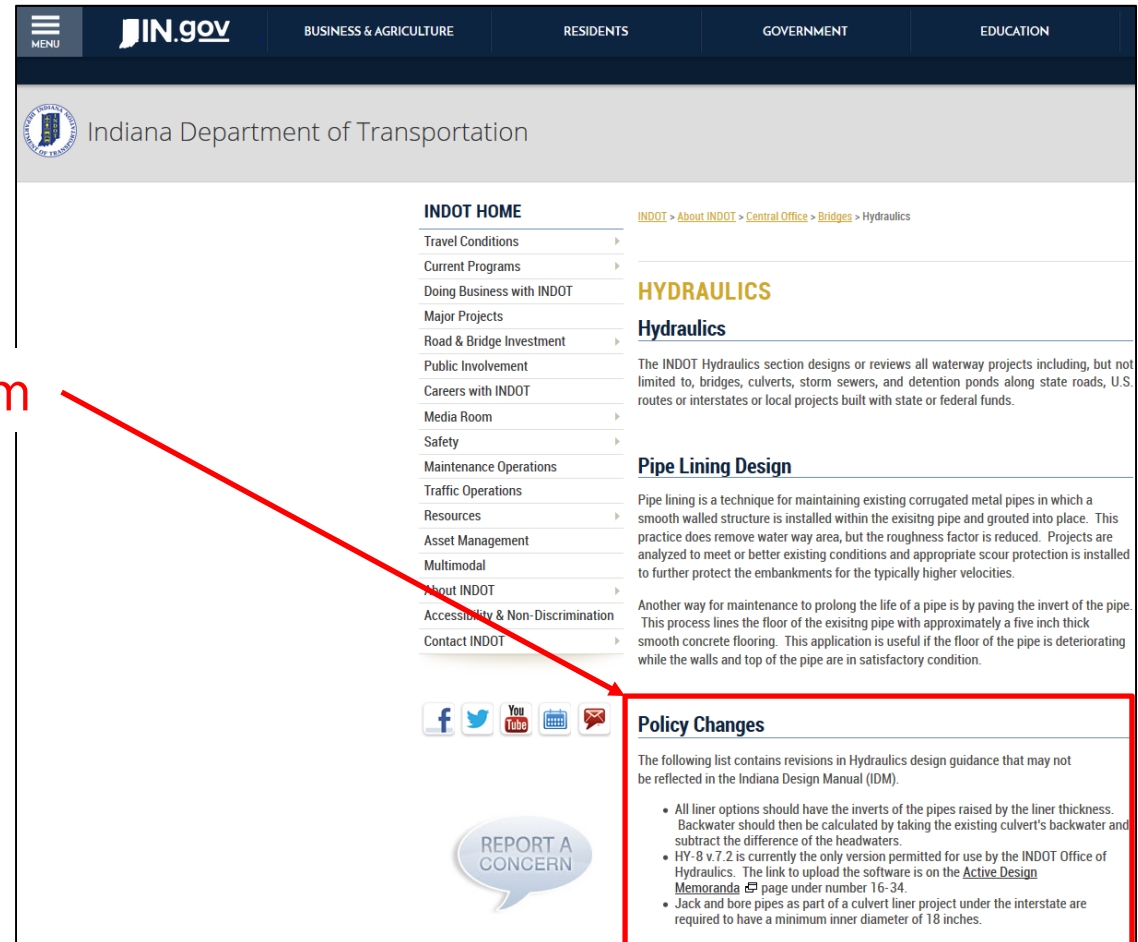
# Updates to the IDM

## How can I keep up with design standard updates?

Road School presentation

New Hydraulics  
webpage

<http://in.gov/indot/3595.htm>



The screenshot shows the Indiana Department of Transportation (INDOT) website. The navigation bar includes 'MENU', 'IN.gov', 'BUSINESS & AGRICULTURE', 'RESIDENTS', 'GOVERNMENT', and 'EDUCATION'. The main header reads 'Indiana Department of Transportation'. A left sidebar lists various categories such as 'INDOT HOME', 'Travel Conditions', 'Current Programs', 'Doing Business with INDOT', 'Major Projects', 'Road & Bridge Investment', 'Public Involvement', 'Careers with INDOT', 'Media Room', 'Safety', 'Maintenance Operations', 'Traffic Operations', 'Resources', 'Asset Management', 'Multimodal', 'About INDOT', 'Accessibility & Non-Discrimination', and 'Contact INDOT'. The main content area features a breadcrumb trail: 'INDOT > About INDOT > Central Office > Bridges > Hydraulics'. Below this is the 'HYDRAULICS' section, which includes a sub-section for 'Hydraulics' and a 'Pipe Lining Design' section. A red box highlights the 'Policy Changes' section, which contains a list of updates to the Indiana Design Manual (IDM). A red arrow points from the URL in the text to the 'Policy Changes' section.

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**HYDRAULICS**  
**Hydraulics**  
The INDOT Hydraulics section designs or reviews all waterway projects including, but not limited to, bridges, culverts, storm sewers, and detention ponds along state roads, U.S. routes or interstates or local projects built with state or federal funds.

**Pipe Lining Design**  
Pipe lining is a technique for maintaining existing corrugated metal pipes in which a smooth walled structure is installed within the existing pipe and grouted into place. This practice does remove water way area, but the roughness factor is reduced. Projects are analyzed to meet or better existing conditions and appropriate scour protection is installed to further protect the embankments for the typically higher velocities.  
Another way for maintenance to prolong the life of a pipe is by paving the invert of the pipe. This process lines the floor of the existing pipe with approximately a five inch thick smooth concrete flooring. This application is useful if the floor of the pipe is deteriorating while the walls and top of the pipe are in satisfactory condition.

**Policy Changes**  
The following list contains revisions in Hydraulics design guidance that may not be reflected in the Indiana Design Manual (IDM).

- All liner options should have the inverts of the pipes raised by the liner thickness. Backwater should then be calculated by taking the existing culvert's backwater and subtract the difference of the headwaters.
- HY-8 v 7.2 is currently the only version permitted for use by the INDOT Office of Hydraulics. The link to upload the software is on the [Active Design Memoranda](#) page under number 16-34.
- Jack and bore pipes as part of a culvert liner project under the interstate are required to have a minimum inner diameter of 18 inches.



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