



STANDARD OPERATING PROCEDURE FOR POST TENSIONING

Leon Flournoy, P.E.
Bridge Division



Standard Operating Procedures(SOP) for Post-tensioning Operations

1

Discuss the reason behind this new SOP

2

Discuss what's included and what's not

3

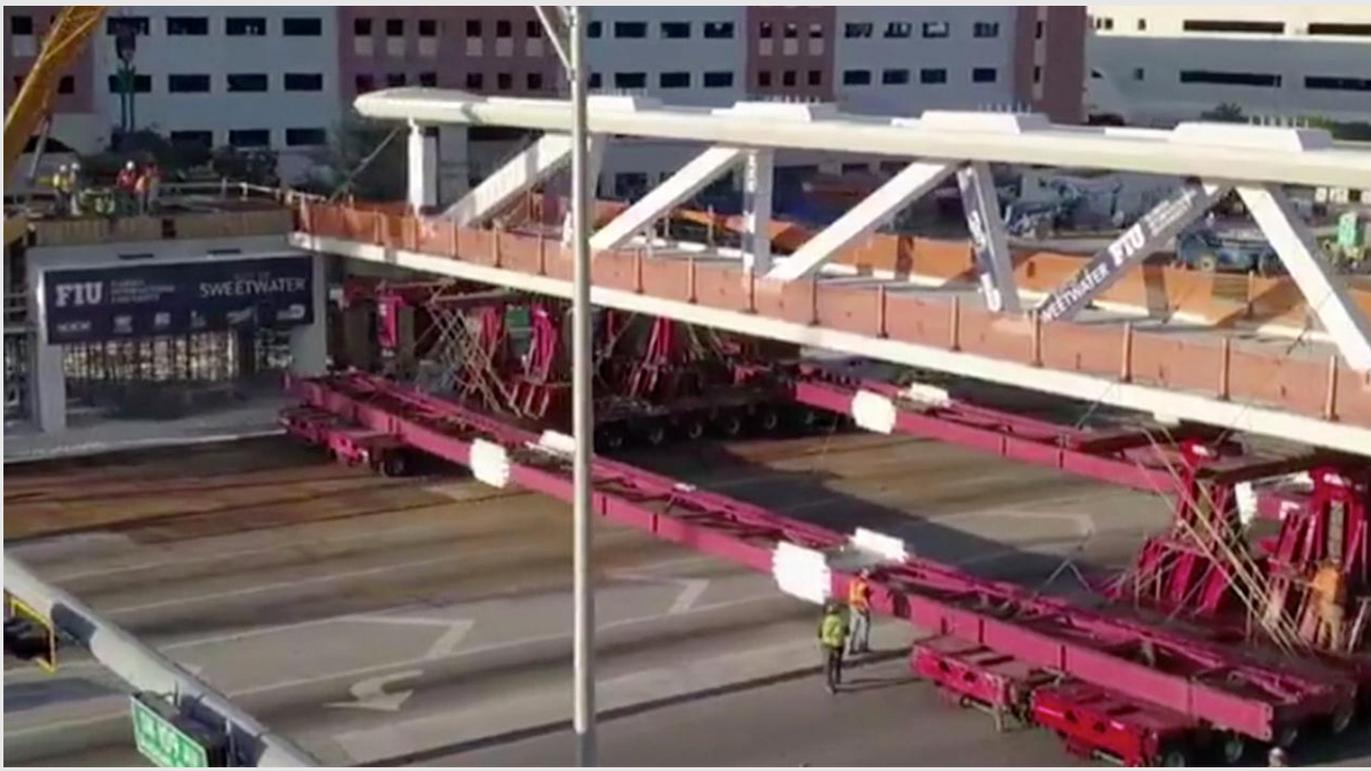
A few failures we hadn't anticipated.

Standard Operating Procedures for Post-tensioning Operations

- TxDOT has used post-tensioning (PT) in the field for decades.
- We've primarily used PT on bent caps and straddle caps. More recently we've seen more unique structures utilizing post-tensioning.
- While we have always taken safety precautions during stressing operations we haven't had formal procedures.



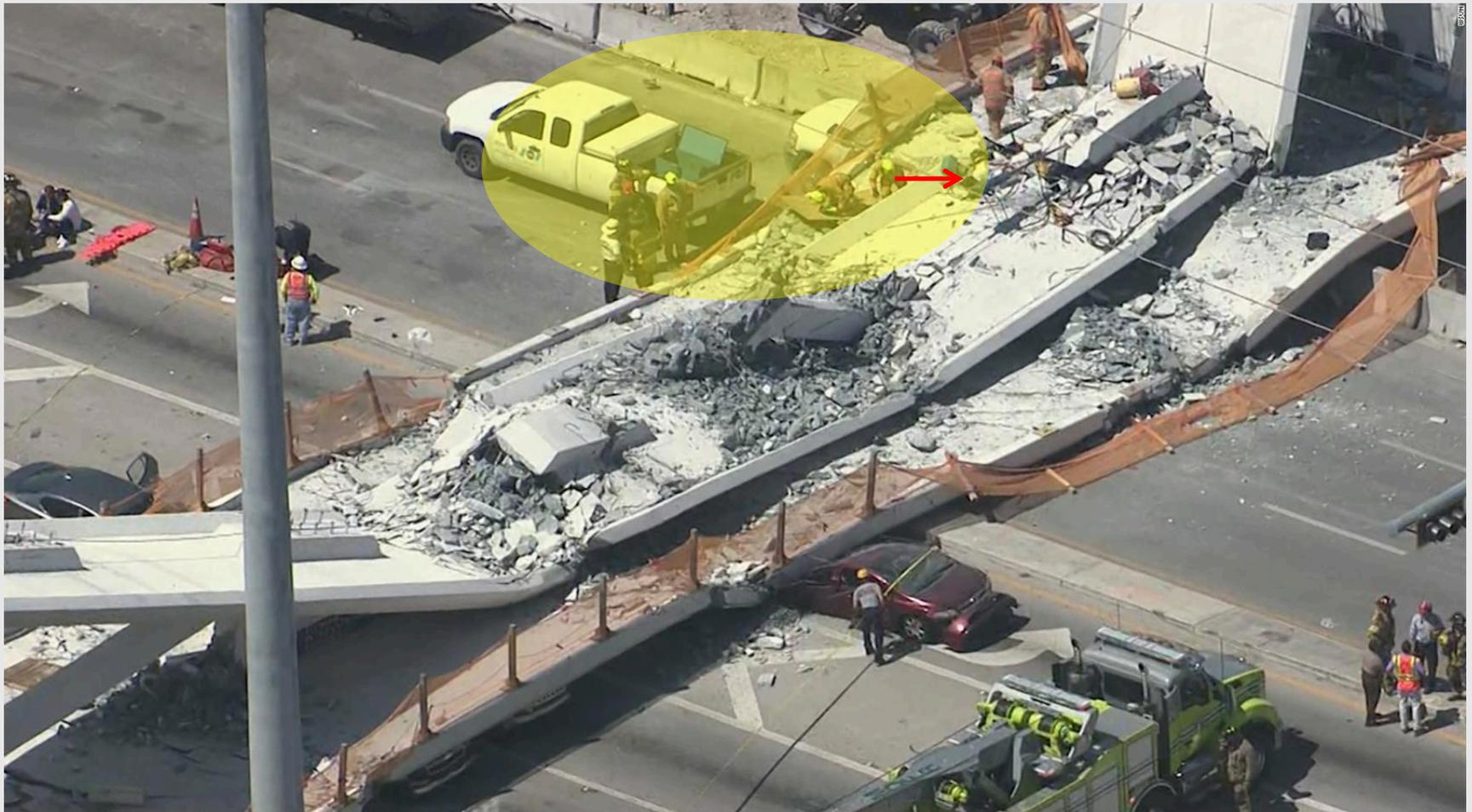
Florida FIU Bridge Collapse



Florida FIU Bridge Collapse



Florida FIU Bridge Collapse



Standard Operating Procedures:



MEMO

April 4, 2018

To: District Engineers

Through: Bill Hale
Chief Engineer

DocuSigned by:

Bill Hale

B9775932E4FB44F...

From: Gregg Freeby
Bridge Division Director

Subject: Standard Operating Procedure on Constructing Post-Tensioned Structures over or Adjacent to Traffic

TxDOT has utilized post-tensioning in bridge construction for many years, primarily in straddle and cantilevered bent caps. Increasingly it is also being used in segmental bridges, spliced girders, and other unique applications. Although appropriate protection for the traveling public is typically included during post-tension operations, until now TxDOT has not had a formal procedure or requirement that special protection be added when post-tension operations are undertaken above or adjacent to open roadways.

The attached Standard Operating Procedure includes requirements for adding special protection for the traveling public during post-tension operations. This procedure will be in place until a Statewide Special Provision is made to Item 426, *Post-Tensioning*. Please distribute to your design and construction personnel.

CC: Randy Hopmann, Director of District Operations
Michael Lee, Director of Engineering and Safety Operations

Standard Operating Procedures (SOP)

- Protective measures could include:
 - Temporary traffic closures.
 - Protective screenings.
 - Supplementary support.
 - Project-specific protection.
- SOP addresses two categories.
 - Typical PT operations requiring screening devices at anchorages, and protection of temporary shoring.
 - Complex PT operations requiring traffic control plans or other unique protection.
- Procedure will be added to Spec Item 426.



Standard Operating Procedures (SOP)

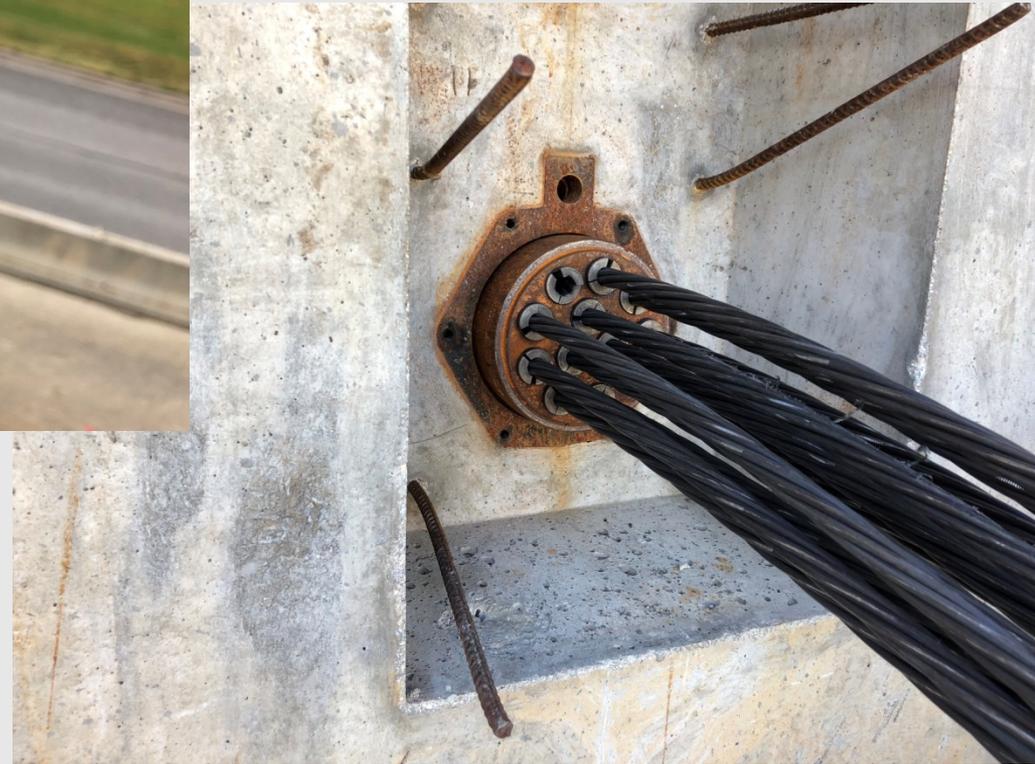
- Install special protection when warranted, but SOP does not get into specifics of the protection. That will be determined on a project-by-project basis.
- Adjacent is generally defined as a roadway near enough that it could be impacted if the element being post-tensioned were to collapse or some aspect to fail.
- Contractor submits plan that must be approved by Engineer. Bridge Division is available to assist as needed.



Then this happened...



Strand failures after the stressing jack had been removed



Then this....



Spall between two segments



Bridge Division Field Operations Construction & Maintenance Branch

Branch Manager-Kevin Pruski, P.E.(512)-416-2306

Doug Beer, P.E. (512) 416-2824

Jorge Carrasco, P.E. (512) 416-2520

Aaron Garza, P.E. (512) 416-2586

Leon Flournoy, P.E. (512) 416-2493

Benjamin Ramirez, P.E. (512) 486-5992



Standard Operating Procedure for Post-Tensioning

Copyright 2018 • Texas Department of Transportation • All Rights Reserved
Entities or individuals that copy and present state agency information must identify the source of the content, including the date the content was copied. Entities or individuals that copy and present state agency information on their websites must accompany that information with a statement that neither the entity or individual nor the information, as it is presented on its website, is endorsed by the State of Texas or any state agency. To protect the intellectual property of state agencies, copied information must reflect the copyright, trademark, service mark, or other intellectual property rights of the state agency whose protected information is being used by the entity or individual. Entities or individuals may not copy, reproduce, distribute, publish, or transmit, in any way this content for commercial purposes. This presentation is distributed without profit and is being made available solely for educational purposes. The use of any copyrighted material included in this presentation is intended to be a “fair use” of such material as provided for in Title 17 U.S.C. Section 107 of the US Copyright Law.