

# **Alternate Bidding History and Requirements 2013 Purdue Road School**

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# POI - Agenda

- Introduction and stage setting
- Current requirements
- Issues
- Future vision and direction
- Questions & some answers, or more questions



# Introduction and stage setting

- Brave men to the front!



# Introduction and stage setting

In 1818 the Institution of Civil Engineers was founded in London, and in 1820 the eminent engineer Thomas Telford became its first president. The institution received a Royal Charter in 1828, formally recognizing civil engineering as a profession. Its charter defined civil engineering as:

The art of directing the great sources of power in nature for the use and convenience of man, as the means of production and of traffic in states, both for external and internal trade, as applied in the construction of roads, bridges, aqueducts, canals, river navigation and docks for internal intercourse and exchange, and in the construction of ports, harbors, moles, breakwaters and lighthouses, and in the art of navigation by artificial power for the purposes of commerce, and in the construction and application of machinery, and in the drainage of cities and towns.

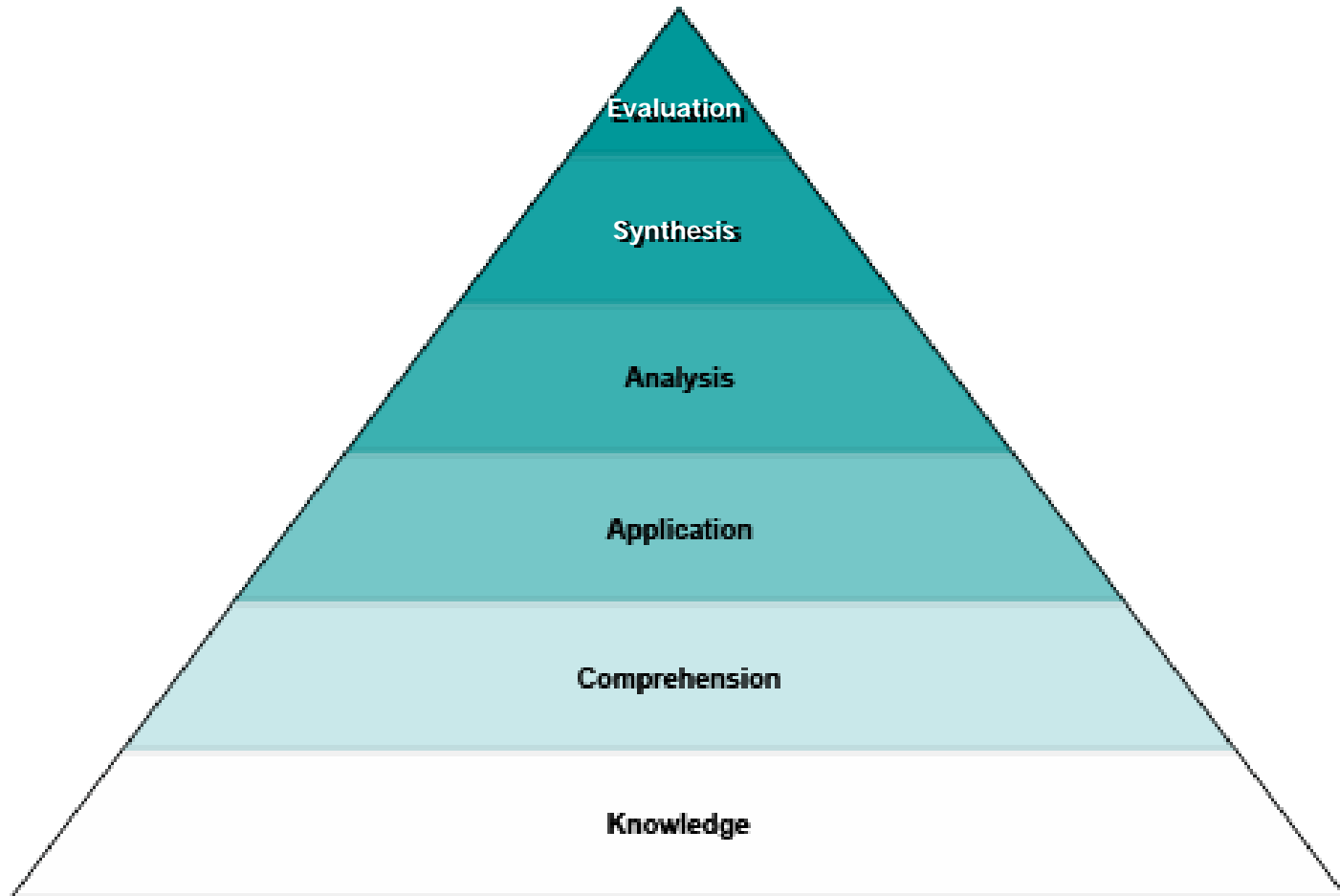


# Introduction and stage setting

Engineering Canons



# Introduction and stage setting

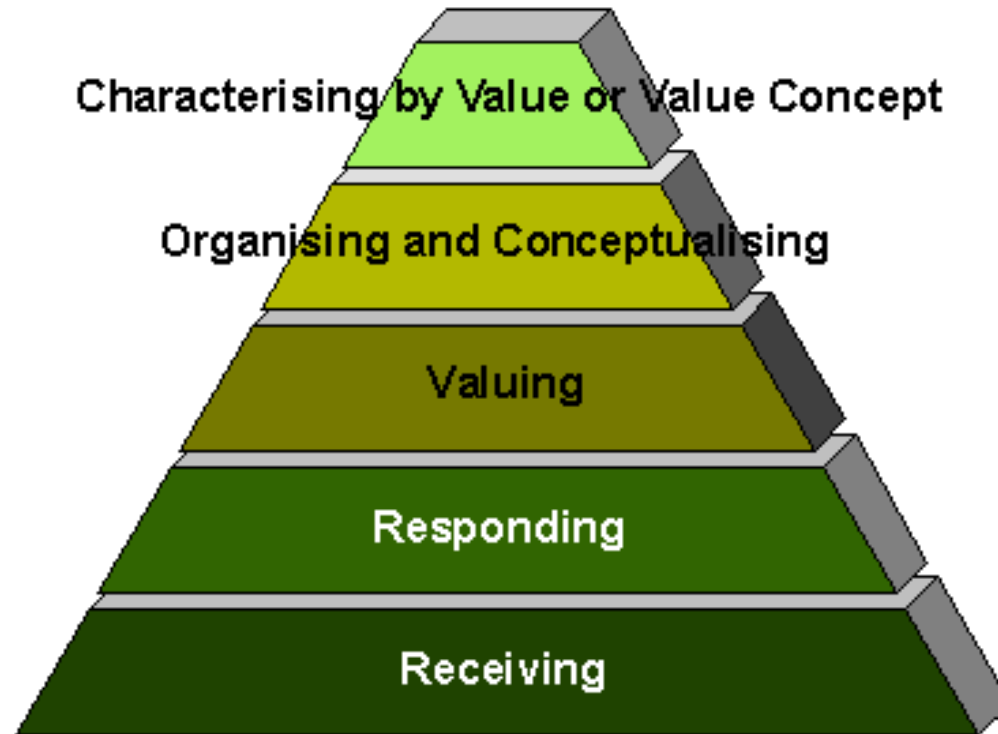


Bloom's Taxonomy of learning. Adapted from: Bloom, B.S. (Ed.) (1956)  
Taxonomy of educational objectives: The classification of educational goals.  
Handbook I, cognitive domain. New York ; Toronto: Longmans, Green.



# Introduction and stage setting

Affective domain

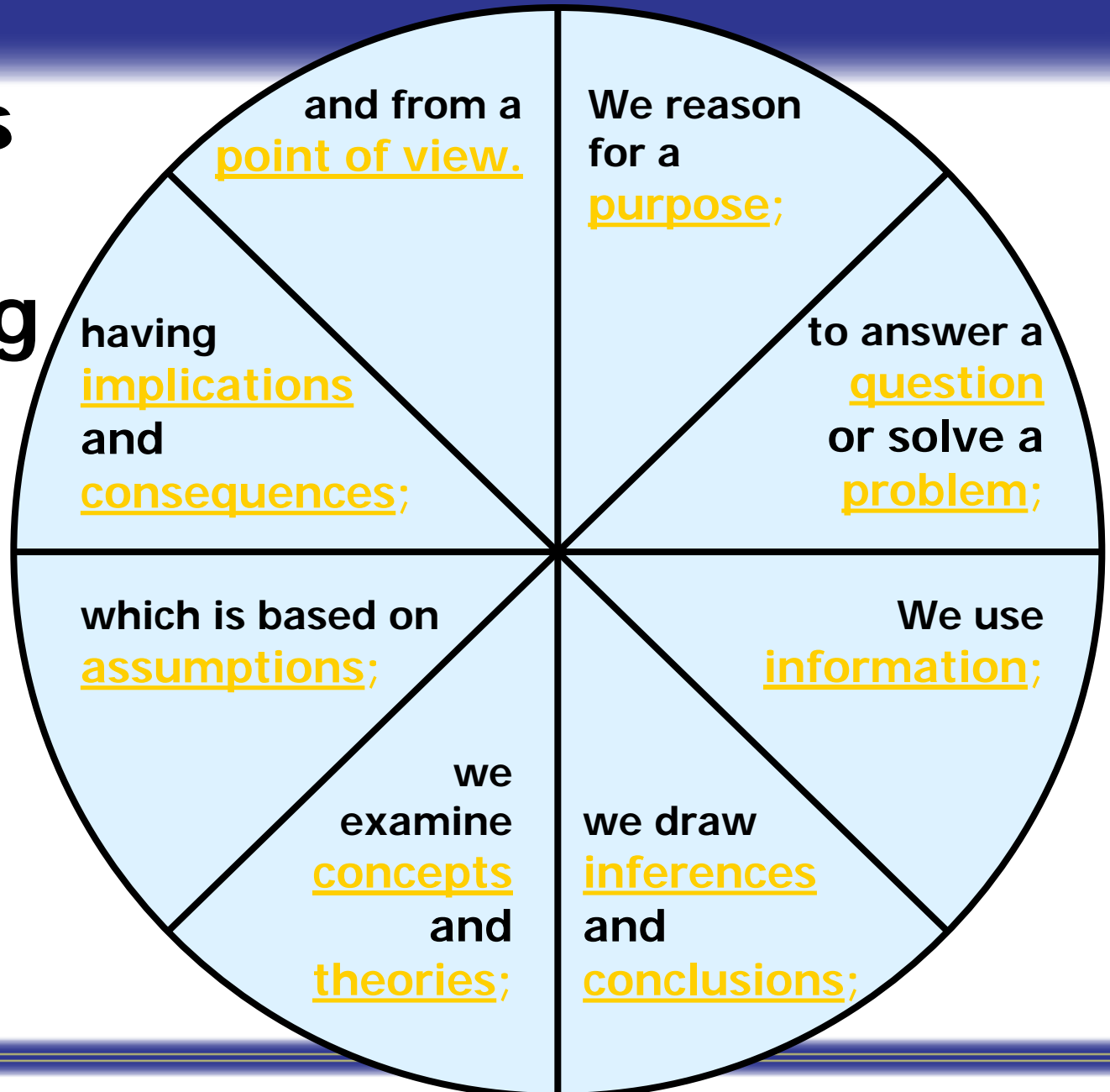


Atherton J S (2011) *Learning and Teaching; Bloom's taxonomy* [On-line: UK] retrieved 27 February 2013 from <http://www.learningandteaching.info/learning/bloomtax.htm>



# Elements of Reasoning

Taking  
thinking  
apart . . .





# Universal Intellectual Standards

Testing the quality of your thinking. . .

- Clarity
- Accuracy
- Precision
- Relevance
- Depth
- Breadth
- Logic
- Significance
- Fairness

A good start...

What standards might you add for your discipline?



# Introduction and stage setting

Why is critical reasoning relevant?

**FABULOUS only goes so far!**

And Dave Holtz says so doesn't go very far either.



# Current requirements

- $\geq 10,000$  Syd mandates LCC analysis
- $\leq 10\%$  difference in LCC analysis results mandate alternate pavement type bid preparation
  - Special circumstances
    - Justification
    - Briefing / discussion, not e-mail
  - See guidance



# Current requirements

- Develop select alternate pavement type plan sheets (only as few as necessary)
- Develop LCC present-worth factor just prior to bid opening



# Issues

- Project development process affects
  - Different organizational perspectives
    - LPA or INDOT – owner
    - FHWA – “mortgage holder”
    - INDOT – “representative agent”
  - Least cost of ownership
    - Least cost of development
    - Least cost of construction
    - Least cost of maintenance & operating



# Issues

- Project development process affects
  - Different organizational perspectives
    - MY WIFE / taxpayer

WHAT DO YOU THINK ARE HER ISSUES

OKAY, being married to me, let's move on

REAL QUESTION:

WHAT ARE THE HER/THE TAXPAYERS' CONCERNS?



# Issues

- Project development process affects
  - Better earlier than later
  - Current submissions generally too late in process
    - CAUSES GREAT UNNECESSARY ANGST!
  - LCC analysis separate step from alternate pavement type bid plans preparation



# Issues

- Alternate pavement type bidding
  - HMA vs. PCC mobilization
  - HMA vs. PCC construction engineering
- Project complexity and other unique circumstances
  - Design-Build
  - Straight-line vs. complex or non-linear layout
  - Mainline vs. intersections
  - \_\_\_\_\_ - any others?





# Issues

- Optional bid vs. alternate bid
- Premature disclosure of LCC PW adjustment factor
- Special or unique organizational
  - Practices
  - Competencies
  - Preferences
  - History
- Construction & aggregate source geographic influences



# Issues

- P3
  - Variable pavement cross-sections on top of alternate pavement type bidding
  - Variable pavement LCC approaches
    - Low maintenance x-section vs. low initial construction cost x-section
- Noise & environmental considerations
- Pavement analysis-design prequalification
  - Effectiveness of economies of force
    - Time, cost, support, testing, etc.



# Future vision and direction

- Not going away
- More precision at lower end of spectrum
  - Syd triggers?
  - Project type triggers?
  - Project engineering purpose & need triggers?
- Earlier LCC assessment automatically presumed in development process
- Appropriate level of analysis complexity



# Future vision and direction

- % project awardees vs. non-awardees mandates cost-effective expenditure
- Automated or simplified pavement condition assessments expected
- Premature development of plan not acceptable, i.e., wasted resources



# Current pavement asset management strategic direction

Manual engineering condition Assessment

Windshield survey

START HERE!

Route Letter Code	Key #								
Begin RP # (MILEAGE)	End RP # (MILEAGE)	Direction							
		Inspection Date							
General Pavement Information		Composite		Comments		Composite		Comments	
Pavement Type									
PCI (D-100)									
SMA Number									
General Structural Cond.		Unknown (U)	0			Unknown (U)	0		
General Functional Cond.		Unknown (U)	0			Unknown (U)	0		
General Surface Cond.		Unknown (U)	0			Unknown (U)	0		
Pavement Distress Assessment		Extent		Severity		Comments		Extent	
Fatigue/Wheel Path Cracking		Unknown (U)	0	Unknown (U)	0			Unknown (U)	0
Block Cracking		None (N)	6	No Severity (A)	6			Unknown (U)	0
Transverse Cracking		Little Extent (L)	5	Light Severity (S)	5			Unknown (U)	0
Longitudinal Cracking		Moderate Extent (M)	4	Moderate Severity (S)	4			Unknown (U)	0
Longitudinal Joints		Extensive (E)	3	Severe (S)	3			Unknown (U)	0
Edge Cracking		Very Extensive (V)	2	Very Severe (V)	2			Unknown (U)	0
Patching/Patch Deterioration		Extensive (E)	3	Severe (S)	3			Unknown (U)	0
Rutting / Shoving		Unknown (U)	0	Unknown (U)	0			Unknown (U)	0
Pumping		Moderate Extent (M)	4	Light Severity (S)	5			Unknown (U)	0
Weathering / Ravelling		Very Extensive (V)	2	Moderate Severity (S)	4			Unknown (U)	0
Stripping		Little Extent (L)	5	Extensive (E)	3			Unknown (U)	0
Potholes		Unknown (U)	0	Unknown (U)	0			Unknown (U)	0
Corner Breaks		Unknown (U)	0	Unknown (U)	0			Unknown (U)	0
Raveling		Unknown (U)	0	Unknown (U)	0			Unknown (U)	0
Punchouts		Unknown (U)	0	Unknown (U)	0			Unknown (U)	0
Other Distress 2		Unknown (U)	0	Unknown (U)	0			Unknown (U)	0
Shoulders	Type	SMA		SMA					
	Condition	Good		Unknown					
	Geometry	Unknown		Unknown					
	Adequacy	Unknown		Unknown					
Curbs	Shoulder Clipping Necessary	Unknown		Unknown					
	Paint Striping Issue	Unknown		Unknown					
	Type	None		None					
	Condition	Unknown		Unknown					
Underdrains	Adequacy	Somewhat Adequate		Unknown					
	Inlets present	Unknown		Unknown					
	Type	None		None					
	Condition	Poor		Unknown					
Roadside Ditch	Maintenance Status	Unknown		Unknown					
	Work/maintenance commentary								
	Type	Unknown		Unknown					
	Condition	Acceptable		Unknown					
Drainage	Maintenance	Unknown		Unknown					
	Work/maintenance commentary								
	Condition	Failure		Unknown					
	Maintenance Status	Unknown		Unknown					
Maintenance Adequacy	Work/maintenance commentary								
	Type	None		None					
	Condition	Good		Unknown					
	Maintenance Status	Unknown		Unknown					
Crack/Joint Maintenance	Work/maintenance commentary								
	Type	None		None					
	Condition	Good		Unknown					
	Maintenance Status	Unknown		Unknown					



# Questions?

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