

TxDOT 2030 Bridge Needs Assessment Update meeting 8/21/2008



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Bridge Chapter Outline

1. NBI data with nationwide summaries and where Texas stands (6/24/08)
2. Federal funding (6/24/08)
3. TxDOT data and report on needs (6/24/08)
4. TxDOT unit costs for rehab and replace (7/24/08)
5. Future needs framework (8/21/08)
6. Deterioration models and thresholds for rehab and replace (8/21/08)
7. Expansion factors and mobility needs
8. Results



Future needs framework

• User Costs Drive Expansion

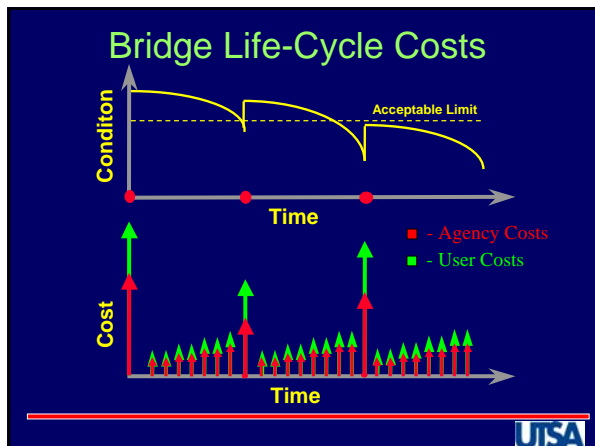
- Travel Time
- Vehicle Operating Costs
- Accidents
- Environmental



• Agency Costs

- Maintenance
- Rehabilitation
- Replacement
- Expansion





Thresholds for Rehab and Replace

(1) Bridge must be on the NBI database. Bridges that meet the following criteria are on the NBI database:

- longer than 20 feet (item 49*) AND
- highway bridge that carries a public road

(2) To be eligible for rehabilitation, bridge must have a Sufficiency Rating of 80 or less; To be eligible for replacement, bridge must have a Sufficiency Rating of less than 50.

(3) Bridge must be classified as either structurally deficient OR functionally obsolete.

- To be classified as structurally deficient, a bridge must have:
 - Rating of 4* or less for:
 - deck (item 58*) OR
 - superstructure (item 59*) OR
 - substructure (item 60*) OR
 - culvert (item 62*) OR
 - Rating of 2* or less for:
 - structural evaluation (item 67*) OR
 - wallway adequacy (item 71*)
- To be classified as functionally obsolete, a bridge must have:
 - Rating of 3* or less for:
 - deck geometry (item 68*) OR
 - underclearance (item 69*) OR
 - approach roadway alignment (item 72*) OR
 - Rating of 3* for:
 - structural evaluation (item 67*) OR

Structural

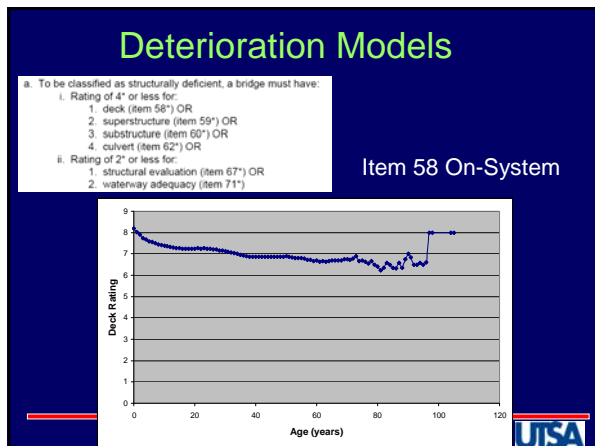
Geometry

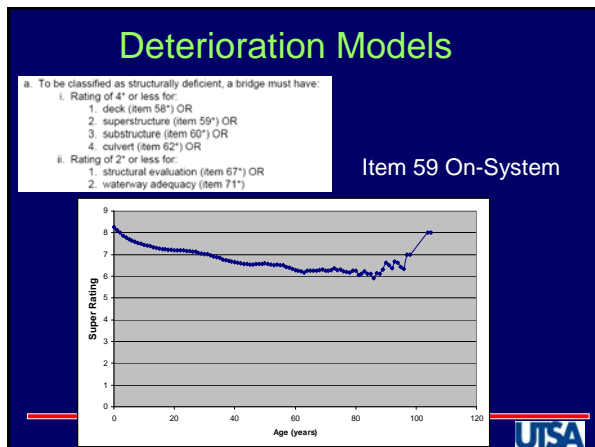
USA

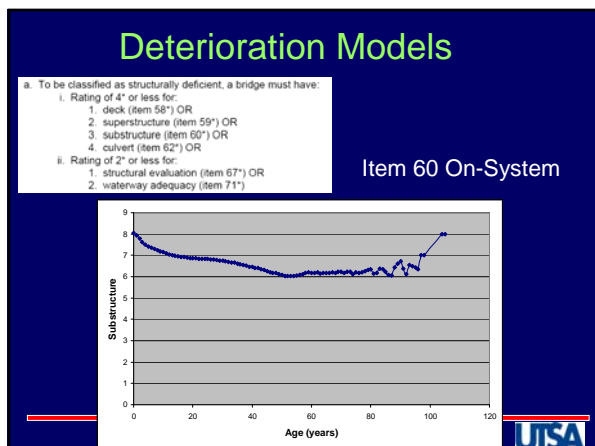
Historical Data in SAS

SPRINT	StructureID	Year	YearClass	ASCT	Handicap	DeckCond	SuperCond	SubCond
295206	1996 1800100103640100	1994	13	009950	2131	8	8	8
295217	1996 1800100103640100	1994	13	030000	2131	8	8	7
295228	1997 1800100103640100	1994	13	030000	2131	8	8	7
295239	1998 1800100103640100	1994	13	030000	2131	8	8	7
295240	1999 1800100103640100	1994	13	030000	2131	8	8	7
295241	2000 1800100103640100	1994	13	030000	2131	8	8	7
295242	2001 1800100103640100	1994	13	020900	2131	8	8	8
295243	2002 1800100103640100	1994	13	021500	2131	8	8	8
295244	2003 1800100103640100	1994	13	024000	1131	7	8	8
295245	2004 1800100103640100	1994	13	030000	1131	7	8	8
295246	2004 1800100103640100	1994	13	025000	1131	7	8	8
295247	2005 1800100103640100	1994	13	030000	1131	7	8	8
295248	2006 1800100103640125	2006	13	025000	1131	8	8	8
295249	2007 1800100103640125	2006	13	030000	1131	8	8	8
295250	1996 1800100110050200	1995	44	004000	2111	7	7	7
295251	1996 1800100110050200	1995	44	004000	2111	7	7	7
295252	1997 1800100110050200	1995	44	004000	2111	7	7	7
295253	1998 1800100110050200	1995	44	004000	2111	7	7	7
295254	1999 1800100110050200	1995	44	004000	2111	7	7	7
295255	2000 1800100110050200	1995	44	004400	2111	8	7	7
295256	2001 1800100110050200	1995	44	000300	2111	8	7	7
295257	2002 1800100110050200	1995	44	000200	2111	6	6	6
295258	2003 1800100110050200	1995	44	007000	2111	6	6	6
295259	2004 1800100110050200	1995	44	000000	2111	6	6	6
295260	2005 1800100110050200	1995	44	000700	2111	6	6	6
295261	2006 1800100110050200	1995	44	000700	2111	6	6	6
295262	2007 1800100110050200	1995	44	000000	2111	6	6	6
295263	1996 1800100110050207	1982	44	005000	1125	7	8	7
295264	1996 1800100110050207	1982	44	004000	1125	8	7	7
295265	1997 1800100110050207	1982	44	004000	1125	8	7	7
295266	1998 1800100110050207	1982	44	004000	1125	8	7	7
295267	1999 1800100110050207	1982	44	004000	1125	8	7	7
295268	2000 1800100110050207	1982	44	004400	1125	8	7	7
295269	2001 1800100110050207	1982	44	000300	1125	8	8	7
295270	2002 1800100110050207	1982	44	000200	1125	7	7	6
295271	2003 1800100110050207	1982	44	007000	1125	7	7	6

USA







Deterioration Models

b. To be classified as functionally obsolete, a bridge must have:

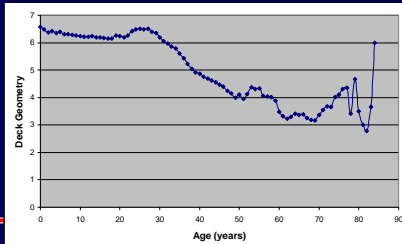
i. Rating of 3* or less for:

1. deck geometry (item 68*) OR
2. underclearance (item 69*) OR
3. approach roadway alignment (item 72*) OR

ii. Rating of 3* for:

1. structural evaluation (item 67*) OR
2. waterway adequacy (item 71*)

Item 68 On-System
Urban



Deterioration Models

b. To be classified as functionally obsolete, a bridge must have:

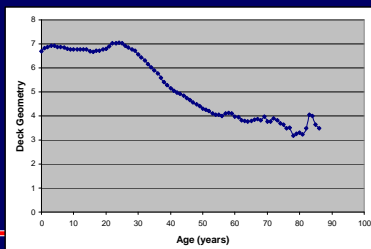
i. Rating of 3* or less for:

1. deck geometry (item 68*) OR
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ii. Rating of 3* for:

1. structural evaluation (item 67*) OR
2. waterway adequacy (item 71*)

Item 68 On-System
Rural



Future Developments

- Develop future needs for existing bridges
- Integrate with mobility analysis (expansion factors)