



# Renewing Texas Infrastructure

## 2012 Texas Infrastructure Report Card

### Texas Section – American Society of Civil Engineers



## Bridge Fact Sheet

### Key Infrastructure Facts: Existing Condition and Performance

- The Federal Highway Administration (FHWA) and the Texas Department of Transportation (TxDOT) define a bridge as a structure erected over a depression or obstruction; having a roadway or track for carrying traffic; and having a length of more than 20 feet.
- Bridge Condition is categorized in terms of sufficiency: sufficient bridges, structurally deficient bridges, functionally obsolete bridges, and sub-standard for load-only bridges.
  - A sufficient bridge meets current federal and Texas requirements. It is not structurally deficient, functionally obsolete, or sub-standard for load only.
  - A structurally deficient bridge meets any of the following criteria:
    - Has an extreme restriction on its load carrying capacity.
    - Has deterioration severe enough to reduce its load carrying capacity beneath its original as-built capacity.
    - Is closed.
    - Is frequently overtopped during flooded, creating severe traffic delays.
  - A functionally obsolete bridge fails to meet design criteria in any of the following areas:
    - Deck geometry
    - Load carrying capacity
    - Vertical or horizontal clearances
    - Approach roadway alignment
  - A sub-standard-for-load-only bridge does not have significant enough deterioration to reduce its load-carrying capacity below its original capacity, but its original capacity was not designed to carry current legal loads. These bridges are load-posted or recommended for load-posting.
- There are 51,557 bridges in Texas – this is 59 percent more than any other state. Of these, 33,679 are on-system bridges (on the designated state highway system) and 17,878 are off-system bridges (under direct jurisdiction of local governments such as a county or a city).
- 54 percent of all bridges in Texas have been in service over 36 years, and 32 percent have been in service over 50 years: 16,410 built between 1950-1970 and 8,596 built before 1950 (these were generally designed for less than current legal load and many are load posted).
  - The average age of all on-system bridges is 43 years.
  - The average age of all off-system bridges is 31 years.
  - 112 of the on-system bridges are constructed of timber (> 50 years old and near the end of their service life).
  - 2,822 of the bridges are load-posted or restricted to traffic (240 are on-system).
  - 151 bridges are closed (10 of these are on-system).
  - There are 24 vehicular international bridge crossings along the Texas and Mexico border.

- 41,398 of the bridges in Texas are sufficient bridges (80.3 percent), and 10,137 are non-sufficient bridges (19.7 percent)\*. TxDOT's goal is to continue to improve its percentage of sufficient bridges.
- Over 10,000 bridges are still non-sufficient or load-restricted.

## **Anticipated Growth and Other Future Needs**

- Texas has added 985 new bridges to the system since 2008.
- Bridge maintenance spending must increase to ensure that service life expectations are met for new bridges represented by the increasing inventory level as well as for older bridges.
- The number of functionally obsolete on- and off-system bridges in Texas decreased by 352 bridges since 2008.
- The number of both structurally deficient and functionally obsolete bridges is expected to rise over the next 10 years as the bridges that were built in the late 1950's reach their 50-year design life. This will increase the required number of bridges that will need to be improved each year.

## **Adequacy of Current Funding and Need for Expanded Funding**

- Excluding bridge class culverts, only 38 percent of the non-sufficient bridges are on-system bridges. While it is clear that continued funding is required to improve off-system bridges, the majority of the required funds are needed for on-system bridges.
- In fiscal year 2010, TxDOT spent \$351.4 million on on-system bridge maintenance and replacement/ rehabilitations.
  - \$31.0 million on bridge Maintenance
  - \$320.4 million on bridge Replacement/Rehabilitation
- Maintenance funds for on-system routine bridge maintenance were approximately \$22.6 million, or 2.2 percent of the total maintenance expenditures.
- On-system bridge maintenance under construction projects has decreased from \$13.8 million during fiscal year 2008 to approximately \$8.4 million during fiscal year 2010.
- Funds spent for on-system bridge replacement/rehabilitations have increased from \$309.5 million in fiscal year 2008 to \$320.4 million in fiscal year 2010.
- Given the tightening fiscal condition of the State of Texas, and since funding under the FHWA Highway Bridge Program (HBP) is limited, the use of additional funding mechanisms for bridge preservation is needed in order for TxDOT to continue to improve its percentage of sufficient bridges.

## **Sources**

- *Report on Texas Bridges as of September 2010*, Texas Department of Transportation
- *Bridge Facts – FY 2010*, Texas Department of Transportation ([www.txdot.gov](http://www.txdot.gov))
- Input from the Bridge Division, Texas Department of Transportation, March 2012.

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\* 22 bridges (<1%) are not classified by condition.