

GLOSSARY

A

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO is a nonprofit, nonpartisan association representing highway and transportation departments. Its guides and specifications are used to describe many standards for highway design including loading requirements for highway (vehicular) bridges.

Annual Average Daily Traffic (AADT)

The total volume passing a point or segment of a highway facility in both directions for one year, divided by the number of days in the year.

Asset Management

Asset management is a systematic process of operating, maintaining, and improving physical assets, with a focus on data driven analysis, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair of the State's transportation assets at minimum practicable cost. (Reference: 23 U.S.C. 101(a)(2), MAP-21 § 1103). For example, ODOT has seen strong performance in bridge asset management in recent years, such as decline in number of structurally deficient bridges.

Attainment Area

Any geographic area in which levels of a given criteria air pollutant (e.g., ozone, carbon monoxide, PM10, PM2.5, and nitrogen oxide) meet the health-based National Ambient Air Quality Standards (NAAQS) for that pollutant. An area may be an attainment area for one pollutant and a nonattainment area for others. A "maintenance area" (see definition below) is not considered an attainment area for transportation planning purposes.

B

Bridge Abutment

A retaining wall supporting the ends of a bridge or viaduct.

Bridge Approach

The part of the bridge that carries traffic from the land to the main parts of the bridge.

Bridge Beam

A horizontal bridge structure member supporting vertical loads by resisting bending. A girder is a larger beam, especially when made of multiple plates.

Bridge Box

A reinforced concrete box greater than or equal to 20 feet wide measured along the center of the roadway.

Bridge Condition Ratings

Through periodic safety inspections, data is collected on the condition of the primary components of a structure.

- The bridge deck, including the wearing surface
- The superstructure, including all primary load-carrying members and connections
- The substructure, considering the abutments and all piers

Bridge Deck

The roadway portion of a bridge, including shoulders. Most bridge decks are constructed as reinforced concrete slabs, but timber decks are still seen in rural areas and open-grid steel decks are used in some movable bridge designs.

In the deck-type bridge, a steel or reinforced concrete bridge deck is supported on top of two or more plate girders, and may act compositely with them. Additional beams may span across between the main girders, for example in the form of bridge known as ladder-deck construction. Also, further elements may be attached to provide cross-bracing and prevent the girders from buckling.

Bridge Fatigue

Cause of bridge structural deficiencies, usually due to repetitive loading over time.

Bridge Girder

A horizontal structure member supporting vertical loads by resisting bending. A girder is a larger beam, especially when made of multiple metal plates. The plates are usually riveted or welded together.

Bridge Gusset Plate

A metal plate used to unite multiple structural members of a truss.

Bridge Joint

A device connecting two or more adjacent parts of a bridge structure.

Bridge Load

Weight distribution throughout a bridge structure; loads caused by wind, earthquakes and gravity affect how weight is distributed throughout a structure.

Bridge Member

An individual angle, beam plate or built piece intended to become an integral part of an assembled frame or structure.

Bridge Pier

A vertical structure that supports the ends of a multi-span superstructure at a location between bridge abutments.

Bridge Reconstruction

Reconstruction consists of widening existing bridge lanes, raising bridges to increase vertical

clearances, or strengthening bridges to increase load carrying capacity.

Bridge Rehabilitation

Bridge rehabilitation involves major work required to restore the structural integrity of a bridge as well as work necessary to correct major safety defects. Most rehabilitation projects include repairs to several bridge components, but rehabilitation can be limited to bridge deck replacement.

Bridge Replacement

Replacement occurs when a functional improvement or reconstruction is infeasible because of the bridge design, or impractical because of its inferior structural condition.

Bridge Span

The horizontal space between two supports of a bridge structure. Also refers to the structure itself. May be used as a noun or a verb.

Bridge Substructure

The substructure of a bridge consists of all parts that support the superstructure. The main components are: abutments, piers, footings and pilings.

Bridge Superstructure

The superstructure consists of the components that actually span the obstacle the bridge is intended to cross. It includes: bridge deck, structural members, parapets, handrails, sidewalk, lighting, and drainage features.

Bridge Truss

Any of various structural frames based on the geometric rigidity of the triangle and composed of straight members subject only to longitudinal compression, tension, or both: functions as a beam or cantilever to support bridges, roofs, etc.

C

Capacity

A transportation facility's ability to accommodate a moving stream of people or vehicles in a given time period.

Class I Railroad

In the United States, the Surface Transportation Boards defines a class of railroad based on revenue thresholds adjusted for inflation. For the most recent year of classification (2013), Class I railroad is defined as a carrier having operating revenues of \$467.0 million or more.

Class III Railroad

In the United States, the Surface Transportation Boards defines a class of railroad based on revenue thresholds adjusted for inflation. For the most recent year of classification (2013), Class III railroad is a carrier with yearly operating revenues under \$37.4 million.

Clean Air Act (CAA)

The original Clean Air Act was passed in 1963, but the national air pollution control program is actually based on the 1970 revision of the law. The Clean Air Act as amended in 1990 made major changes and contains the most far reaching revisions of the 1970 law.

Conformity (Air Quality)

A CAA (42 U.S.C. 7506[c]) requirement that ensures that federal funding and approval are given to transportation plans, programs and projects that are consistent with the air quality goals established by a State Implementation Plan (SIP). Conformity, to the purpose of the SIP, means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the National Ambient Air Quality Standards (NAAQS). The transportation conformity rule (40 CFR part 93) sets forth policy, criteria, and procedures for demonstrating and assuring conformity of transportation activities.

Congestion Mitigation and Air Quality Improvement (CMAQ) Program

A federal-aid funding program that directs funding to projects that contribute to meeting national air quality standards. CMAQ funds generally may not be used for projects that result in the construction of new capacity available to SOVs (single-occupancy vehicles).

Councils of Governments (COG)

Councils of governments or regional councils are multipurpose, multijurisdictional public organizations. Created by local governments to respond to federal and state programs, regional councils bring together participants at multiple levels of government to foster regional cooperation, planning and service delivery. They may also be called regional planning commissions, substate planning districts, economic development districts, or other names, and may or may not include the structure and functions of Metropolitan Planning Organizations (MPOs). (see below for definition of MPO).

D

Deck Truss

A bridge whose roadway is supported from beneath by a truss.

Department of Transportation (DOT)

When used alone, indicates the U.S. Department of Transportation. In conjunction with a place name, indicates state, city, or county transportation agency (e.g., Oklahoma DOT).

E

Eight-Year Construction Work Plan

ODOT administers an eight-year construction work plan program which assists the Department in scheduling and conducting the complex engineering, environmental, and right-of-way processes necessary to complete construction projects in a timely fashion.

The first four years of the Eight Year Construction Work Plan are represented in the Statewide Transportation Improvement Program (STIP). The 2015-2040 LRTP is a broad policy document, whereas the STIP and Construction Work Plan discuss the program of specific projects.

The document is sometimes referred to as the Construction Work Plan or CWP.

Embankment

A bank, mound, dike, or the like, raised to hold back water, carry a roadway, etc.

Environmental Protection Agency (EPA)

The federal regulatory agency responsible for administering and enforcing federal environmental laws, including the Clean Air Act, the Clean Water Act, the Endangered Species Act, and others.

F**Federal Fiscal Year**

October 1 through September 30 of the following year.

Federal Highway Administration (FHWA)

The mission of FHWA is to administer the Federal-Aid Highway Program to create the best transportation system in the world for the American people through proactive leadership, innovation, and excellence in service. The FHWA is a part of the U.S. Department of Transportation and is headquartered in Washington, D.C., with field offices located across the United States.

Federal Trade Zone

A secure area in or adjacent to a U.S. Port of Entry under U.S. Customs and Border Protection (CBP) supervision, but not required to follow the formal CBP entry procedures and payments of duties required on foreign merchandise (until it enters territories under CBP protection for domestic consumption). While in the foreign trade zone, merchandise is not subject to U.S. duty or excise tax and goods can be exported from the zone free of duty and excise tax.

Federal Transit Administration (FTA)

A branch of the U.S. Department of Transportation that administers federal funding to transportation authorities, local governments, and states to support a variety of locally planned, constructed, and operated public transportation systems throughout the U.S., including buses, subways, light rail, commuter rail, streetcars,

monorail, passenger ferry boats, inclined railways, and people movers.

Functionally Obsolete Bridge

A functionally obsolete bridge is one that was built to standards that are not used today. These bridges are not automatically rated as structurally deficient, nor are they inherently unsafe. Functionally obsolete bridges are those that do not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic demand, or those that may be occasionally flooded.

A functionally obsolete bridge is similar to an older house. A house built in 1950 might be perfectly acceptable to live in, but it does not meet all of today's building codes. Yet, when it comes time to consider upgrading that house or making improvements, the owner must look at ways to bring the structure up to current standards.

FTA Capital Program Funds

Financial assistance from the transit major capital programs of 49 U.S.C. Section 5309. This program enables the Secretary of Transportation to make discretionary capital grants and loans to finance public transportation projects including fixed guideway transit systems; replacement, rehabilitation, and purchase of buses and rented equipment, and construction of bus-related facilities.

G**Geographic Information System (GIS)**

Computerized data management system designed to capture, store, retrieve, analyze, and display geographically referenced information, e.g., mapping.

Gross Domestic Product (GDP)

The output of goods and services produced by labor and property located in the United States and is the broadest measure of economic activity.

H

Highway Expansion

Expansion deals with the need to provide additional capacity by adding lanes in order to alleviate congestion and maintain an acceptable level of service. Expansion is the most costly highway improvement type on average.

Highway Preservation

Preservation refers to regular resurfacing of a road. When a road has pavement deteriorating to unacceptable levels, resurfacing is the improvement choice to maintain the integrity of the roadway. Resurfacing preserves the highway, and it is the most common type of improvement. Over the next 25-years, there are some highway asphalt segments that will require two treatments because of the traffic they carry.

Highway Reconstruction

Reconstruction is the improvement of an existing roadway by upgrading the geometrics and functionality of the segment. Improvements such as widening lanes and shoulders are examples of reconstruction. Reconstruction identifies roadways that are so structurally deficient that they cannot be repaired by resurfacing alone, and must be rebuilt from the base.

Highway Trust Fund

A fund credited with receipts that are held in trust by the government and earmarked by law for use in carrying out specific purposes and programs in accordance with an agreement or a statute.

I

Intelligent Transportation Systems (ITS)

Electronics, photonics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system. The National ITS architecture is a blueprint for the coordinated development of ITS technologies in the United States, providing a systems framework to guide the planning and deployment of ITS infrastructure.

Intermodal Freight Facility

An intermodal freight facility handles containerized traffic that moves on the road, rail, or waterway systems.

Intermodal Transportation

Intermodal transportation is the movement of passengers or goods from origin to destination through the use of one or more transportation modes – automobile, bicycle, pedestrian, transit, air, water, or freight – sequentially. Locations where passengers or goods switch from one mode to another are typically called intermodal facilities, terminals, or centers. Some intermodal connections are as simple as a bus stop or a parking lot.

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)

Legislative initiative by the U.S. Congress that restructured and authorized federal funding for transportation programs; provided for an increased role for regional planning commissions/ MPOs in funding decisions; and required comprehensive regional and statewide long term transportation plans.

Interstate Highway System (IHS)

The specially designated system of highways, begun in 1956, which connects the principal metropolitan areas, cities, and industrial centers of the United States. Also connects the United States to internationally significant routes in Canada and Mexico.

J

None

K

None

L

Let or Letting Date

The date that construction bids are scheduled to be opened by the transportation agency.

Load Posted Bridge

Any bridge or structure restricted to carrying loads less than the legal load limit. Load posting a bridge is required by National Bridge Inspection Standards when a bridge is not capable of safely carrying a legal load.

Long Range Transportation Plan (LRTP)

A document resulting from statewide collaboration on a state's transportation system, and serving as the defining vision for the state's transportation systems and services. The 2015-2040 LRTP is Oklahoma's LRTP, and it is policy document that guides ODOT in the development, management, and operation of a safe and efficient transportation system for the next 25 years.

M

Main Span (of bridge)

The longest span in a multi-span bridge and located between the bridge's main piers or towers (supports). Bridges are typically compared using main-span lengths, which do not account for the length of the entire bridge or its approaches.

MAP-21

The Moving Ahead for Progress in the 21st Century Act (MAP-21). In 2012, MAP-21 authorized over \$105 billion in federal funding for surface transportation programs for fiscal years (FY) 2013 and 2014. It has been extended by Congress and still serves as the latest comprehensive transportation funding act.

McClellan-Kerr Arkansas River Navigation System (MKARNS)

Oklahoma's primary navigable waterway originating from the Tulsa Port of Catoosa and flowing southeast through Arkansas to the Mississippi River.

Metropolitan Planning Organization (MPO)

The policy board of an organization created and designed to carry out the metropolitan transportation planning process for urbanized areas with populations greater than 50,000, and

designated by local officials and the Governor of the state.

Metropolitan Statistical Area (MSA)

A geographic area consisting of a large population nucleus together with adjacent communities having a high degree of economic and social integration with the nucleus. A metropolitan statistical area must have at least one urbanized area of 50,000 or more inhabitants.

Mode

A specific form of transportation, such as automobile, water, bus, rail, air, bicycle, or foot.

Multimodal Transportation

Multimodal refers to the availability of transportation options within a system or part of the system. The modes discussed in the 2015-2040 LRTP are highway and bridge, freight rail, passenger rail, public transportation, bicycle and pedestrian, waterways, and air.

N

National Environmental Policy Act of 1969 (NEPA)

Legislation requiring that any project using federal funding or requiring federal approval (including transportation projects) examine the effects of alternative choices on the environment before a decision is made.

National Highway System (NHS)

The National Highway System (NHS) consists of roadways important to the nation's economy, defense, and mobility. The NHS includes the following subsystems of roadways: Interstates, Other Principal Arterials, the Strategic Highway Network, major Strategic Highway Network Connectors, and Intermodal Connectors.

The NHS includes the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility. The NHS was developed by the Department of Transportation (DOT) in cooperation with the states, local officials, and metropolitan planning organizations.

Nonattainment Area (NAA)

A geographic region of the United States that has been designated by the EPA as a nonattainment area under Section 107 of the CAA for any pollutants for which an National Ambient Air Quality Standards (NAAQS) exists, meaning that federal air quality standards are not being met.

O

Obligation Authority

The maximum amount of federal formula funds that can be authorized in a federal fiscal year. The use of obligation authority does not affect the apportionment or allocation of federal funds a state receives. It only controls the rate of expenditure.

Ozone

A gas composed of three oxygen atoms (O₃). In the lower atmosphere, near the earth's surface, ozone is created by chemical reactions between air pollutants from vehicle exhaust, motor gasoline vapors, and other emissions.

P

Performance Measures

Performance measures use quantitative data to gauge ODOT's effectiveness in fulfilling one or more major elements of its overall mission. For ODOT this includes focusing on the 2015-2040 LRTP's goal topics.

Poverty Thresholds

The dollar amounts used by the U.S. Census Bureau to determine poverty status. The thresholds vary according to the size of the family and the ages of the members.

Public Hearing

Meeting held with purpose of receiving public comments on proposed projects or plans.

Public Participation/Public Involvement

The active and meaningful involvement of the public in the development of transportation plans and programs.

Q

None

R

Reinforced Concrete Bridge (RCB)

Bridges longer than 20 feet in length.

Reinforced Concrete

Concrete with steel bars or mesh embedded in it for increased strength in tension.

S

SAFETEA-LU

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU authorized the federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009. It was extended several times until 2012.

Silt

Sediment particles ranging from 0.00016 to 0.0024 inches in diameter.

Simple Span Bridge

A bridge span in which the effective length is the same as the length of the spanning structure.

Stakeholders

Individuals and organizations involved in or affected by the transportation planning process. Includes federal/state/local officials, MPOs, transit operators, freight companies, shippers, users of the transportation infrastructure, and the general public.

State Highway System

The State Highway System includes Interstate, U.S., and Oklahoma (State) highways within the State of Oklahoma.

State of Good Repair (SGR)

An asset or system is in a state of good repair when no backlog of capital needs exists – hence all asset life cycle investment needs (e.g.,

preventive maintenance and rehabilitation) have been addressed and no capital asset exceeds its useful life.

Statewide Transportation Improvement Program (STIP)

A statewide prioritized listing/program of transportation projects covering a period of four years that is consistent with the long-range statewide transportation plan (LRSTP), metropolitan transportation plans (MTPs), and transportation improvement plans (TIPs), and is required for projects to be eligible for funding under Title 23 U.S.C. and Title 49 U.S.C. Chapter 53.

Strategic Highway Network (STRAHNET)

This is a network of highways which are important to the United States' strategic defense policy and which provide defense access, continuity and emergency capabilities for defense purposes. These highways are part of the NHS.

Structurally Deficient Bridge and Bridge Sufficiency Rating

A bridge sufficiency rating includes a multitude of factors: inspection results of the structural condition of the bridge, traffic volumes, number of lanes, road widths, clearances, and importance for national security and public use, to name just a few.

The bridge's sufficiency rating provides an overall measure of the bridge's condition and is used to determine eligibility for federal funds. Bridges are considered structurally deficient if significant load carrying elements are found to be in poor condition due to deterioration, or the adequacy of the waterway opening provided by the bridge is determined to be extremely insufficient to point of causing intolerable traffic interruptions.

The fact that a bridge is classified under the federal definition as "structurally deficient" does not imply that it is unsafe. A structurally deficient bridge, when left open to traffic, typically requires significant maintenance and repair to remain in

service and eventual rehabilitation or replacement to address deficiencies.

"Super" loads

"Super" loads are the extremely oversize or overweight commercial vehicle loads that require independent analysis for review and route approval prior to transporting on the highway system.

Systemic Approach

A comprehensive approach that evaluates the statewide system using a variety of metrics to determine policies, strategies, and recommendations to address overall statewide needs. For example, the systemic approach to safety is widely implemented improvements based on high-risk roadway features correlated with specific crash types.

T

TEA-21

The Transportation Equity Act for the 21st Century (TEA-21). In 1998, TEA-21 authorized approximately \$217 billion in federal funding for transportation investment for FYs 1998-2003. This funding was used for highway, transit, and other surface transportation programs.

Transportation Appurtenances

In addition to the highway, bridge and interchange needs, transportation appurtenances (accessory items or items associated with the transportation system) require improvement. These include safety, maintenance, Ports of Entry, weigh stations, rest areas, Intelligent Transportation System (ITS), and state freight rail including at-grade highway railroad crossings.

U

Underpass

The lowest feature of a grade separated crossing.

Urbanized Area (UA)

A geographic area with a population of 50,000 or more, as designated by the U.S. Bureau of the Census.

V**Vertical Curve**

A sag or crest in the profile of a roadway.

Visualization Techniques

Methods used by states and MPOs in the development of transportation plans and programs with the public, elected and appointed officials, and other stakeholders in a clear and easily accessible format such as maps, pictures, and/or other displays to promote improved understanding of existing or proposed transportation plans and programs.

W**Waterway**

The available width for the passage of water beneath a bridge. Waterways are considered a mode for freight transportation in Oklahoma.

Weigh in Motion (WIM)

Equipment that measures the weight of moving trucks. Is used by state highway agencies for monitoring pavement loadings.

X

None

Y

None

Z

None



REFERENCES

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