Annual Road Condition Report
2020 Fiscal Year
Summary

GENERAL PURPOSE: To document the condition of each road in each precinct of Grimes County, including bridges and culverts, and to identify significant expenditures made in the maintenance and improvement of the County’s road and bridge system.

This Summary incorporates the following documents that are generally prepared in the first quarter of the calendar year

LATERAL ROAD REPORT: The annual lateral road report is incorporated into the annual road condition report by reference.

ROAD INVENTORY: The annual road inventory is used as the basis for the road condition report and is also incorporated herein by reference.

BRIDGE CONDITION REPORTS: Bridge conditions for each bridge in the County longer than 20 feet are inspected on a bi-annual basis by the Texas Department of Transportation Bridge Division under the BRINSAP Program. Bridge inspections are performed by TxDOT in the winter/spring of even numbered years. These reports are also incorporated by reference and constitute the primary documentation for the condition of bridges in Grimes County.

EVALUATION:

Each road in Grimes County has been broken down into segments based on the type of material used for the surfacing of that segment. This information is taken from the annual Road Inventory and GIS data, and is updated each year, as new construction changes the surfacing material. The conditions of each road have been rated by R&B personnel on a scale of 1-5, with 1 being the lowest.

Each road segment is categorized on the basis of the predominant causes of deterioration.
The information regarding rating of the road segment and the causes of deterioration is used to guide planning and maintenance efforts for the road system. This information is incorporated into the budgeting process to help determine the prioritization of road, culvert, and bridge improvements on an objective basis.

SUMMARY:

Roads

Grimes County’s road system consists of approximately 642 miles of roads that are maintained by the County. In addition, there are approximately 76 miles of municipal roads that are maintained by the County under interlocal agreements.

Of Grimes County’s roads, approximately 190 miles are asphalt surfaced, either hot mix or chip seal. Concrete surfaced roads currently maintained by the County constitute 2.6 miles at this time.

The remaining roads in the County comprise approximately 449 miles of unpaved roadway. The majority of these have some type of flexible base surface material, although 90 miles are classified as dirt roads. This last category consists of roads that have little or no flexible base material and are largely comprised of in situ native materials, primarily caliche or sand.

The annual Road Inventory report provides a detailed breakdown of the classifications of the County’s roads, locations by precinct, value and accumulated depreciation.

During FY 2020, Grimes County paved a total of 9.56 miles of roads that were previously unpaved. In addition, another 11.56 miles of previously paved roads received a third course of seal coating or significant level up applications. Grimes County has established a goal of paving/repaving 10 miles of roadway each fiscal year.

Appendix A to this report documents the road conditions for the County-maintained roads, and their relative condition ratings. A synopsis of these evaluations is provided in the following paragraphs.

Road conditions for the paved roads in Grimes County are generally rated as a 3 rating or “average” based on the assessment of the Road & Bridge Department.

Deterioration of the paved roads is caused primarily by inadequate base course to support the traffic loadings, followed by inadequate drainage contributing to pavement damage and weakening of the subgrade. A significant number of the paved roads also suffer deterioration due to heavy truck loads related to oil field operations, pipeline construction, and/or housing construction.
Oil field operations contribute to road deterioration due to the extremely heavy loads created by equipment needed for drilling operations, and also due to ongoing production activities, particularly hauling of salt water brine from producing wells to disposal sites and also hauling of crude oil from wells that are not connected to pipeline networks.

Construction-related traffic related to pipeline projects has been a particular problem for Grimes County in the past, however there was no significant pipeline construction in 2020.

In 2017, Grimes County adopted a Road Use Permit system as a means of addressing the damages caused by heavy construction projects such as pipelines.

Drainage related deterioration is caused by a combination of inadequate roadside ditches, under sized and/or deteriorated culverts, and flooding due to extreme weather. In 2020, for the second year in a row, Grimes County did not suffer any declared disasters due to flooding. However, in the four years prior to 2019, the County did experience five declared disasters due to flooding. Repairs and recovery from these disasters has been completed, however we are still awaiting final payments from FEMA on some of these damages. Grimes County has also received grant funding relating to these declared disasters, which will help to improve our drainage infrastructure and make the County more resilient in the case of future floods.

The 2015 disaster declaration resulted in a $866,000 grant, which was used to replace the CR 202 bridge over Hurricane Creek, and to improve drainage on Pinebrook Drive. These projects were completed in 2020. Additional grants related to previous disaster declarations were in the final stages of design in 2020, with construction scheduled for 2021.

To address the general roadside drainage issues, Grimes County established a dedicated Drainage Crew in 2016. In the 2019-2020 fiscal year budget, the Commissioners Court funded the establishment of a second Drainage Crew to address the roadside drainage issues in a more aggressive manner.

**Bridges - BRINSAP**

Grimes County’s road system also includes 91 bridges that are covered by the TxDOT BRINSAP program, and 14 other small bridges that are not inspected by TxDOT.

Based on the recently completed BRINSAP inspections, TxDOT has notified Grimes County of eight structures that are in need of urgent repairs, within the next 6 months. Six of these structures have deterioration of pilings due to rust or rot of the pilings at the waterline of the stream. One also suffered deterioration of the steel beams at the abutment seats, due to accumulation of dirt and debris in these locations. The two remaining structures have channel related deficiencies that threaten the integrity of the structure due to undermining of concrete slope paving by the stream flow or erosion of the channel banks at the abutments due to the stream flow.
As of this writing, seven of the eight structures have been repaired. The one remaining structure is scheduled for repair in the 2020-21 fiscal year. These repairs have been delayed due to the need to acquire access easements.

**Bridges – BRIDGE PROGRAM**

TxDOT assists county governments through an ongoing Bridge Program that funds the replacement or rehabilitation of deteriorated or obsolete bridges under an Advance Funding Agreement (AFA) between TxDOT and the County. This is a cost-sharing program whereby TxDOT funds 90% of the replacement costs, and the county funds 10%. In the case of Grimes County, we are a designated economically disadvantage county, and the matching share is reduced to 6%.

Under the terms of these AFAs, the local county may satisfy its matching fund requirement by means of repairing or replacing other structures, referred to as Equivalent Matching Projects (EMPs).

Currently, there are AFA’s in place for five bridges to be replaced or rehabilitated by TxDOT (CR 201 at Mill Creek, CR 215 at Bums Creek, CR 412 at Grassy Creek, CR 406 at Thomas Creek, and Old Millican Road at Cedar Creek). There are five associated EMP projects designated for repair or replacement by Grimes County. Two of these EMP projects were completed in 2020 – CR 204 at Small Creek, and CR 323 at Beason Creek.

Of the structures identified by the BRINSAP program as being in need of urgent repairs by TxDOT, two were already scheduled for replacement or rehabilitation under an Advance Funding Agreement (AFA) between TxDOT and Grimes County. Unfortunately, these projects are not scheduled until FY 2023, and the ongoing deterioration of the structures will not allow us to wait until then to make repairs. Both of these structures were repaired as indicated above, and then will be replaced or rehabilitated in the near future as previously agreed.

Currently, there are AFA’s in place for three other bridges to be replaced or rehabilitated by TxDOT within the next three years. One of the AFA projects, CR 406 at Thomas Creek has been moved up on the schedule to 2021.

Of the five EMP projects associated with these AFAs, four have been completed, and the other is scheduled for FY 2022.

**Bridge Conditions**

The majority of Grimes County bridges are constructed with wooden pilings, abutments, wing walls, and decks. More recently, Grimes County has adopted a standard design consisting of steel pilings, steel abutments/wing walls, and concrete decks. In addition, the County does own a number of concrete bridges, generally being ones constructed by TxDOT under the Bridge Program, or by private entities such as utility of pipeline
companies where bridge improvements were needed to accommodate their construction of private infrastructure.

Based on the BRINSAP reports, and on inspections by Grimes County, the predominant cause of bridge deterioration is related to rusting/rotting of steel or wooden pilings in the vicinity of the normal mean water level. This zone remains wet but is also exposed to the atmosphere much of the time which promotes rapid deterioration compared to the rest of the structures. Portions of the pilings that are buried remain wet, but are not exposed to the atmosphere, or that are normally dry deteriorate much less than the portions in the air/water interface zone. Deterioration of the pilings is the single greatest cause of bridge repairs and replacements being needed.

After the pilings, wooden bridge decks are the next most significant source of deterioration. Wooden decks deteriorate due to a combination of rotting due to moisture, and general wear from traffic loads.

The third most common source of bridge deterioration is the abutments and wingwalls on wooden bridges. This is due to the constant moisture in the soil behind these structures.

Specific causes of deterioration on any given bridge may be seen by referring to the accompanying BRINSAP reports.

References: 2020 Road Inventory
2020 Lateral Road Report
FY 2018 Off-System Bridge Inventory Inspection and Appraisal Program (BRINSAP)
ACCEPTED BY: GRIMES COUNTY COMMISSIONERS COURT

DATE: April 21, 2021

Grimes County Commissioners Court accepted submittal of the 2020 Annual Road Condition report as presented by the Grimes County Road and Bridge Engineer, Harry B. Walker, PE.

ACKNOWLEDGED BY: ________________________

Joe Fauth III, Grimes County Judge

ATTEST: ________________________

Vanessa Burzynski, Grimes County Clerk
## 2020 Annual Road Condition Report

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