

**To the Mayor and Members of the City Council****August 1, 2023**

Page 1 of 2

SUBJECT: REPORT ON THE CITY'S STREETS MAINTENANCE SCHEDULE

The purpose of this report is to respond to Council's request for information on how the Transportation and Public Works' (TPW) street maintenance program is scheduled.

The City maintains a network of 8100 lane miles. Every 4 years, TPW conducts a pavement condition survey to assess the condition of each pavement segment according to the national standards set by the American Society for Testing and Materials (ASTM). Each pavement segment is assigned a score, known as the Pavement Condition Index (PCI), based on the number of cracks and other failures. This score ranges from 0 to 100, with 0 indicating failing condition and 100 indicating excellent condition. The last pavement condition survey was conducted in 2021, with results showing that the average citywide PCI is 74. Once the PCI is determined, the City follows a specific procedure to schedule future maintenance projects:

- 1) A decision tree is utilized, taking every segment's PCI, surface type (concrete panels or asphalt), functional street classification, failure types, and missing/damaged curb and gutter percentage as inputs to provide a decision of a "maintenance activity" as an output.
- 2) Pavement segments with low PCI values (<50) and a high missing/damaged curb and gutter replacement percentage (>30%) or a high percentage of panels (>50%) that need replacement, are recommended for a future bond program, as described below.
- 3) Pavement segments with relatively higher PCI values (>50) and relatively lower missing/damaged curb and gutter replacement percentages (<30%) are recommended for more immediate repairs via the PayGo program.

PayGo Street Maintenance Program

Due to the nature of planning and funding street maintenance, staff creates a 5 years PayGo work plan as follows:

- a. An engineering model is built to predict the deterioration in the PCI values over a period of 5 years.
- b. A criticality matrix is constructed for the entire network where repairing a segment is considered critical the year before the PCI value deteriorates below a more expensive maintenance activity threshold.
- c. Filtering critical segments based on other infrastructure conditions, such as water and sewer pipes, and coordination with other departments.
- d. Grouping the critical streets together based on proximity, forming feasible projects that minimize the mobilization of materials and construction.
- e. Projects are assigned after internal coordination as follows:
 - i. Projects to be advertised for contracting
 - ii. Projects to be performed in-house by the Street-Operation program
 - iii. Projects to be performed within the 50-50 program with Water/Sewer department
 - iv. Projects to be performed through Inter-Local Agreements with the County.

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Page 2 of 2

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Through PayGo funding, staff has been attempting to achieve the highest possible return on investment (ROI) of the available funds. However, streets continue to deteriorate which contributes to backlog growth. For FY23, the City programmed the following procedures based on the \$21,500,000 PayGo budget:

- Perform \$500K worth of localized brick repair for stockyard and downtown brick pavements
- Perform \$500K worth of joint seal for concrete pavement as a preventive maintenance technique
- Perform \$1M on-call miscellaneous localized concrete repair (for example: curb and gutter, sidewalk, driveways, etc.)
- Perform periodic asphalt resurfacing on 40 lane miles of asphalt pavement streets
- Perform periodic concrete restoration on 22 lane miles of concrete pavement streets.

This is a total of 62 lane miles a year; which is less than one percent of our pavement network.

Bond Funded Maintenance Program

To prioritize the City's street projects for the Bond Program, each proposed street is evaluated using a list of criteria addressing city priorities. Below are the prioritization criteria utilized in the 2022 Bond:

- Equity
- Capital Replacement (Pavement Condition)
- Public Health and Safety
- Infrastructure (for example, proximity to schools and parks)
- Master Plan and Strategic Goals
- Project Collaboration

Every street segment is given a score for each criterion listed above, and then an overall score is assigned, and streets are ranked based on the overall score. The highest-scoring streets are included in the bond program. When funds become available, contracts are let for design, if necessary, and construction. Often, multiple street segments are grouped together for economies of scale. Water, wastewater and drainage components are also included as necessary.

The 2022 Bond included almost 49 lane miles of street reconstruction.

Questions regarding this information can be directed to Lauren Prieur, PE, Director-Transportation & Public Works, at 817-392-6035 or at Lauren.Prieur@FortWorthTexas.gov.

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