Pavement Evaluation

The City of Highland Park inventories and evaluates the pavement condition every three (3) years for all City streets and most alleys. The most recent evaluation was completed in December 2017 through cooperative efforts with Infrastructure Management Systems (IMS), a consulting firm specializing in pavement testing and evaluation. Using a customized testing vehicle, IMS measured the pavement surface and its base and sub-base conditions. The evaluations generate data that determines several ratings for each road. All ratings are based on a scale from 10-100, with 100 as the top score, representative of a new, perfectly constructed street.

Pavement Types

Before we present rating information it is important to note the “pavement” types typically found in Highland Park. This is important as it has a significant impact on interpreting pavement ratings and allows for an “apples-to-apples” comparison when reviewing different streets. For example it may not be appropriate to use similar repair/rehabilitation strategies for composition pavements and full depth concrete pavements.

There are four pavement types found in Highland Park, which are listed below.

1. Composite Pavements: These pavements have an asphalt surface course. Under the asphalt surface course there is a base course that may be concrete or gravel.

2. Flexible Pavements: These pavements are full depth asphalt (no concrete) typically constructed over a stone base.

3. Rigid Pavements: These pavements are full depth Portland Cement Concrete (PCC), typically constructed over a stone base.
4. **Gravel Pavements**: These are full depth gravel (no asphalt or concrete). Gravel pavements are not tested and evaluated.

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**Pavement Rating Report**

The pavement testing and evaluation completed by IMS are summarized in Pavement Rating Reports. One Report addresses Non-Full Depth PCC pavements. The other presents only Full Depth PCC Pavements.

The results of the 2017 pavement testing can be found by clicking on one of the links below:

* [2017 Pavement Test Data – Asphalt Streets](#)
* [2017 Pavement Test Data – Concrete Streets](#)

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This report provides the following information:

1. **Street Name**
2. **Limits (From and To)**
3. **Surface Condition Average**
4. **Deflection Condition Average**
5. **Dynamic Condition Average**
6. **Pavement Condition Average**

The **Surface Condition Average** is the score of the surface of the street segment tested. This number consists of compiled measurements of rutting, cracking, roughness and environmental conditions such as drainage, pavement slope, edge treatments (shoulders or concrete curb and gutter).
The **Deflection Condition Average** is used to gauge remaining life of the pavement. This number is the score of the tested maximum deflection.

The **Dynamic Condition Average** is the score of the tests performed on the base of the pavement structure (pavement layers under the riding surface). This number correlates to the condition of the pavement structure that is found under the riding surface.

The **Pavement Condition Average** is an overall rating figure composed of the Dynamic Condition Average, Deflection Condition Average, Surface Condition Average, traffic, and other factors, weighted according to their effect on overall life. Also considered in this figure are environmental factors such as drainage conditions that may affect pavement life and shoulders conditions next to pavements. Poor shoulder conditions may accelerate edge deterioration.

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**Pavement Repair Selection**

Several factors help City Staff determine which street segments are selected and what type of rehabilitation should be performed on a particular street to develop the 10-yr Capital Improvement Program list.

**Resurfacing**

For example, a street with a low surface rating, but high deflection and/or dynamic rating may be a good candidate for "grind and resurface," which is the removal and replacement of the asphalt wearing surface, along with spot curb & gutter repairs, even though the Pavement Condition Average is high.
**Reconstruction**

Another example may be a street with a high Surface Condition Average, but low scores in other categories. This particular street may be a good candidate for a total reconstruction, which means the roadway is excavated to a depth of 14", a 4" stone base is compacted and 10" of asphalt is installed. Due to the impacts and costs of reconstruction the City typically tries to tie this type of rehabilitation to an infrastructure improvement project such as water main replacement.

![Image of reconstruction work](image)

**Full Depth Concrete Streets**

Concrete streets without an asphalt surface present a slight challenge for rehabilitation, as the biggest issues are joints where the large concrete panels abut one another. The Street Section performs interim repairs by cleaning out the joints and rolling hot-mix asphalt into them to prevent freeze-thaw cycles from further deteriorating the concrete until true concrete repairs can be completed.

![Image of concrete street](image)

**Ten (10) Year List**

A preliminary 10-year list of streets is generated based on the above determination and funding allocation. The list of streets is updated annually during the budget process and can be revised due to weather, funding, Council authorization, and other factors.