2021

PAVEMENT CONDITION RATINGS

FOR THE NON-STATE FEDERAL-AID ELIGIBLE HIGHWAY SYSTEM IN CHEMUNG COUNTY, NY
2021

PAVEMENT CONDITION RATINGS

for the

Non-State Federal-Aid Highway System

in

Chemung County, NY

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Prepared on 1/5/2022
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Introduction

The core components of a Transportation Asset Management system (TAM) are its roads and bridges. This report details the results of the 2021 pavement assessment condition ratings for Non-State Federal Aid Eligible roads in Chemung County, NY. The report is a valuable component in the progression of Chemung County’s Transportation Assessment Management system.

In the Fall of 2021 the Elmira-Chemung Transportation Council (ECTC) in cooperation with the Chemung County Department of Public Works (CCDPW) rated the Non-State Federal-Aid Eligible Highway System. The majority of Non-State Federal-Aid Eligible Road System consists of roads owned by the City of Elmira and Chemung County. There are seven other political jurisdictions with minor Federal-Aid Eligible roads in the western portion of the county. Those seven are the Towns of Big Flats, Catlin, Elmira, Horseheads and Veteran, and the Villages of Elmira Heights and Horseheads. Road assessment techniques were developed with the cooperation of various New York State Metropolitan Planning Organizations (MPOs) and the New York State Department of Transportation (NYSDOT), and are used as the basis for the annual road condition assessment. Information contained within this report complements data collected by NYSDOT for the state Touring System. Together, these two documents comprise a complete report of the condition of the Federal-Aid Highway System in Chemung County, as well as aid the production of functional-class mapping of the entire Federal-Aid Highway System statewide.

This report will aid ECTC to understand the financial resources required to maintain the surveyed roads in the future and in development of its Transportation Improvement Program (TIP). A local municipal Pavement Management System (PMS) should minimally consist of a pavement condition survey and a needs estimating process. This information can assist municipalities in planning maintenance and capital needs.

Data Preparation & Methodology

The pavement condition assessment process, more commonly referred to as road scoring or scoring, was performed using an internally developed system of data sources and software. This system uses ESRI’s ArcGIS geographic information system (GIS) mapping software, Franson Gate GPS tracking platform, a Garmin consumer grade GPS unit, a laptop computer, the New York State Streets digital road centerline (RCL) file, 2 Ricoh GPS cameras and a GoPro camera. The CCDPW provides personnel to assist ECTC staff and a vehicle with safety strobes, which is a critical component to the safety of the team and the motoring public.

NYSDOT provides all MPOs in the state, such as ECTC, with the ArcGIS software. NYSDOT also provides the Streets RCL GIS file used for the base map and data repository for all related roadway data. The Franson Gate GPS tracking platform is used for real-time GPS tracking and to monitor the current live location in the GIS. When field scoring, the current location is an important aid in knowing the exact location to score the appropriate section of roadway. Roadways scored are displayed, or symbolized with a line style and/or color different from the other roadways, which provides a visual aid to know which roads are to be scored.
**Segmentation and Scoring Methodology:**

While performing the field observations for pavement scoring in Chemung County the NYS Streets GIS RCL file has been used since the inception of the road assessment program. The segmentation in urban areas is intersection to intersection, which is the area the majority of federal aid eligible roadways scored are located. In rural areas, segmentation is based on intersections, political boundaries and physical features such as bridges. NYSDOT, through the Bureau of Highway Data Services, has been working to update this road centerline to match the official Local Highway Inventory (LHI). This same RCL file is in progress to become consistent with each county’s 911 RCL file. It is the intention that the ECTC program will utilize this new file in the future in road scoring for greater uniformity amongst other agencies.

The ECTC attends the NYSDOT Highway Data Services Bureau annual workshop, which includes refresher training for NYSDOT employees on the procedures of pavement assessment. The ECTC has become a cooperative partner in the annual highway workshop representing the interest of the various NYS MPOs who are also involved with assessment of their local roads systems, as well as related GIS efforts involving highway data.

NYSDOT methodology measures pavement condition from within the wheel path of the traffic being carried, “white line to white line”, any cracking, faulting or other pavement failure beyond that area is not recognized to define the road condition. The ECTC follows this procedure for consistency with the NYSDOT scoring of the state system.

The Ricoh GPS cameras are mounted on the front of the CCDPW vehicle, typically on the upper outside areas of the windshield out of the driver’s field of view, for photo logging the road system. The cameras are pointed left and right allowing for a wider field of vision than one camera can provide. The GoPro camera, which is a new addition this year, is mounted on the front driver’s side hood. The GoPro faces forward and is set to a linear view to capture the entire road. The pictures captured include GPS coordinates that provide a spatial reference to verify the scores assigned in the field to an exact location. The ECTC photo log is used for reference of areas outside the white lines, to the edge of pavement for bicycle travel suitability. It has been found over the years that the pictures provide many other benefits for the CCDPW infrastructure concerns, as well as a resource for the Chemung County Soils and Water and the Chemung County Sheriff’s Office motor vehicle crash investigations.
The procedure used to rate the roads is documented in the NYSDOT Network Level Pavement Condition Rating Manual. General Guidelines for Sufficiency Scoring are listed below:

1. Scoring represents an average of conditions throughout the entire scoring section.
2. Scoring is across all lanes of roadway where possible.
3. A dominant distress is only noted when appropriate.
4. If a section has sealed cracks, last year’s score is used. Credit is given to patched areas only if 1 inch or more material has been applied.
5. Patched spalls are still noted as spalling.
6. Where grader or skin patching has been done, the unimproved portions are scored.
7. If patching exists on all lanes, last year’s score is used. Credit is given to patched areas only if 1 inch or more material has been applied.
8. Bridge decks and utility cuts are ignored when rating.
9. Widening drop-off cannot occur on curbed sections.
10. Longitudinal cracking of 20% or more shall be considered "general "alligator cracking.

The Pavement Conditions Rating Manual uses two rating scales, which together are used to classify highway sections into five general treatment categories. A segment of pavement is rated from 1 (very poor with severe distress features) to 10 (excellent). The actual score is determined by matching the observed condition of a pavement segment with photographs in the manual until the approximate condition of the pavement is found. The photographs show typical distress features with specific information to help determine the appropriate rating. The NYSDOT chart describing the surface rating scale with associated treatment category is shown below:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Scale</th>
<th>Frequency</th>
<th>Distress</th>
<th>Treatment</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>9-10</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>No Cost</td>
</tr>
<tr>
<td>Good</td>
<td>8</td>
<td>Infrequent</td>
<td>Very Slight</td>
<td>Preventative Maintenance</td>
<td>Min. Cost</td>
</tr>
<tr>
<td>Good</td>
<td>7</td>
<td>Infrequent-Occasional</td>
<td>Slight</td>
<td>Preventative Maintenance</td>
<td>Min. + Cost</td>
</tr>
<tr>
<td>Fair</td>
<td>6</td>
<td>Occasional-Frequent</td>
<td>Moderate</td>
<td>Corrective Measures</td>
<td>Mod. Cost</td>
</tr>
<tr>
<td>Poor</td>
<td>5</td>
<td>Frequent</td>
<td>Mod – Severe</td>
<td>Rehabilitation</td>
<td>High Cost</td>
</tr>
<tr>
<td>Poor</td>
<td>4</td>
<td>Frequent</td>
<td>Severe</td>
<td>Rehabilitation</td>
<td>High + Cost</td>
</tr>
<tr>
<td>Very Poor</td>
<td>1-3</td>
<td>Very Frequent</td>
<td>Very Severe</td>
<td>Reconstruction</td>
<td>Max. Cost</td>
</tr>
</tbody>
</table>

Scale points were selected by NYSDOT based on the general treatments required by the roadway represented in each photograph. There are three photographic scales, one each for each type of pavement, rigid (Portland Cement Concrete), overlaid (asphalt overlaid on rigid), and flexible (full depth asphalt) pavement structures. The scored road surface is defined as the wearing course of the pavement structure. The road base is defined as the material supporting the surface, including the lower portion of the pavement and sub-pavement material. The road is also scored by observing distress symptoms at the road surface and comparing them to distress features in the manual. Distress symptoms are defined as cracks or other abnormalities observable at posted speeds, which will trigger a treatment category different than the treatment category based on the surface rating alone. A table of dominant distress definitions and their associated codes used is shown below:
<table>
<thead>
<tr>
<th>Score</th>
<th>General Condition</th>
<th>Condition Rating Description</th>
<th>Condition Rating Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Surface</td>
<td>Distress Features</td>
</tr>
<tr>
<td>10</td>
<td>Excellent</td>
<td>There are no visual deviations from a smooth surface. Pavement recently constructed, reconstructed, or overlaid within the last two years.</td>
<td>The riding quality is excellent with no indication of any subsurface shifting. Includes facilities constructed within the last two years.</td>
</tr>
<tr>
<td>9</td>
<td>Excellent</td>
<td>Pavement should have no cracks or patches. Flexible pavement recently resurfaced within the past year or two. Overlay pavements may show evidence of some hairline reflection cracking. Rigid pavement joints functioning properly.</td>
<td>Riding quality is excellent, with no indication of subsurface problems. Facilities reconstructed or rehabilitated within the last two years are included in this category.</td>
</tr>
<tr>
<td>8</td>
<td>Good</td>
<td>Pavement gives an excellent ride and exhibits infrequent signs of surface deterioration. Flexible pavements begin to show very slight evidence of raveling, cracking, and wheel track wear. Rigid pavements begin to show very slight evidence of surface deteriorating such as cracking, joint spalling, or scaling. Overlay pavements show evidence of very slight reflection cracking.</td>
<td>Pavement shows infrequent evidence of base or sub-base deteriorating. Flexible pavements show evidence of very slight longitudinal cracking in wheelpaths. Rigid pavements show evidence of very slight displacement and pumping. Overlay pavements show evidence of non-joint reflection cracking.</td>
</tr>
<tr>
<td>7</td>
<td>Good</td>
<td>Pavement gives a good ride but show infrequent to occasional signs of surface deterioration. Flexible pavements show very slight evidence of joint spalling, scaling, or minor, cracking. Overlay pavements show evidence of slight reflection cracking and multiple cracking at reflection cracks.</td>
<td>Roadway show infrequent to occasional signs of rupture and displacement caused by roadbed movement. Flexible pavements may show slight evidence of rutting and wheelpath cracking. Overlay pavements show evidence of non-joint reflection cracking. Rigid pavements show evidence of very slight displacement and pumping, faulting, and base-related cracking. Overlay pavements show slight evidence of longitudinal cracking.</td>
</tr>
<tr>
<td>6</td>
<td>Fair</td>
<td>Riding quality is noticeably inferior to new pavements, showing infrequent to occasional signs of distress. Surface defects of flexible pavements may include moderate rutting, cracking, and raveling; patch is apparent. Overlay pavements show evidence of slight moderate cracking and raveling along cracks.</td>
<td>Roadway shows infrequent to occasional signs of distress caused by roadbed movement or inadequate roadbed support. Flexible pavements show evidence of moderate rutting and moderate cracking. Rigid pavements show evidence of moderate pumping, faulting, and base related cracking. Overlay pavements show evidence of reflection cracking and surface distortion.</td>
</tr>
<tr>
<td>5</td>
<td>Poor</td>
<td>Riding quality is noticeably inferior to new pavements, but may be tolerable for high speed traffic. Surface defects of pavements are the same as under the 6 rating but are more severe.</td>
<td>Roadway show occasional signs of distress caused by roadbed movement. The types of distress are the same as under the 6 rating but are more severe for rigid and overlay pavements.</td>
</tr>
<tr>
<td>Score</td>
<td>General Condition</td>
<td>Condition Rating Description</td>
<td>Distress Features</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
<td>------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>4</td>
<td>Poor</td>
<td>Pavements have deteriorated to a point where resurfacing is required. Drivability, even at slow speeds, is impaired. Surface defects on flexible pavement include severe rutting, cracking, raveling, and patching. Surface defects or rigid pavements include severe joint spalling, cracking, scaling and patching. Overlay pavements show evidence of severe surface delamination.</td>
<td>Roadway shows frequent to occasional signs of distress caused by roadbed movement/inadequate roadbed support. Flexible pavements show signs of severe rutting and alligator cracking. Rigid pavements show evidence of severe corner and diagonal cracking caused by loss of foundation material under the slab. Severe pumping and faulting is also evident. Overlay pavements show evidence of severe reflection cracking and surface distortion (faulting).</td>
</tr>
<tr>
<td>3</td>
<td>Poor</td>
<td>Pavements have deteriorated to a point where resurfacing is required immediately. Flexible pavements show evidence of severe and frequent scaling, joint spalling, faulting, cracking and patching. Overlay pavements show evidence of severe and frequent surface delamination. Rigid pavements show signs of frequent and severe joint spalling, cracking and scaling.</td>
<td>Roadway shows frequent signs of severe rutting and alligator cracking and pavements displacement. Rigid pavements show evidence of severe faulting and cracking. Overlay pavements show evidence of frequent rupture and displacement resulting in motorist discomfort.</td>
</tr>
<tr>
<td>2</td>
<td>Very Poor</td>
<td>Pavement is in extremely deteriorated condition and may require complete reconstruction. Motorists experience discomfort and travel speeds will decrease.</td>
<td>Roadways are in extreme deteriorated condition and may require reconstruction. Flexible, rigid and overlay pavements show evidence of frequent rupture and displacement resulting in motorist discomfort.</td>
</tr>
<tr>
<td>1</td>
<td>Very Poor</td>
<td>Pavement is extremely deteriorated condition and in need of immediate action. These facilities are considered impassable at posted speeds.</td>
<td>Roadways are in extremely deteriorated condition and are in need of immediate correction. These facilities are considered impassable at posted speeds.</td>
</tr>
</tbody>
</table>

**Report and Maps Online**

The report and maps of the following areas: City of Elmira, Chemung County and Non-State Federal Aid Eligible Roadways can be found on the ECTC web site, [https://www.chemungcountyny.gov/departments/s_-_z_departments/transportation_council/index.php](https://www.chemungcountyny.gov/departments/s_-_z_departments/transportation_council/index.php)

Colored lines define and describe the conditions of the non-State Federal Aid System. The pavement scores are color-coded: red = poor, yellow = fair, green = good, dark gray = excellent. This line style shows the distress observation.
Overall Results

There were 139 miles of Non-State Federal-Aid Eligible roadways assessed and scored in Chemung County, NY in 2021. It should be noted that there were 141 miles of Non-State Federal-Aid Eligible roadways assessed and scored in years past. Past road scoring had included scores for pavement found on bridges. This is a valuable resource for potential bridge projects. Going forward, these bridge pavement scores will not be included in the road scoring report, but will be kept in a separate GIS layer if the need for the data should arise. Also missing this year was the Lowman Crossover due to ongoing repair. Of the 139 miles scored 84 miles belong to Chemung County, 34 miles to the City of Elmira, and 21 miles belong to the seven other local municipalities. For the overall system, 11% of the roads were found to be in excellent condition, 60% in good condition, 21% in fair condition, and 9% in poor condition.

Chemung County Routes were found to have following pavement surface conditions: 7 miles or 8% excellent, 55 miles or 66% good, 15 miles or 18% fair, and 7 miles or 8% poor.

City of Elmira streets were found to have the following surface conditions: 3 miles or 8% excellent, 17 miles or 51% good, 10 miles or 29% fair, 4 miles or 12% poor.

The other locally owned roads had the following pavement surface conditions: 5 miles or 23% excellent, 11 miles or 54% good, 4 miles or 20% fair, 1 mile or 3% poor.

NOTE: Mileages and percentages are rounded and were measured using ArcGIS on the NYS Streets RCL file. Refer to the NYSDOT Local Highways Inventory (LHI) for official mileages.
Non-State Federal Aid Eligible Roads - Overall Results

Table 1

Summary of Miles by Condition 2021

<table>
<thead>
<tr>
<th>Condition</th>
<th>Miles</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent 9 &amp; 10</td>
<td>15</td>
<td>11%</td>
</tr>
<tr>
<td>Good 7 &amp; 8</td>
<td>84</td>
<td>60%</td>
</tr>
<tr>
<td>Fair 6</td>
<td>29</td>
<td>21%</td>
</tr>
<tr>
<td>Poor 1 – 5</td>
<td>12</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Total Roads Scored</strong></td>
<td>139</td>
<td>100%</td>
</tr>
</tbody>
</table>

NOTE: Mileages & percentages have been rounded to whole number.

Chart 1

2021 All Non-State Federal Aid Eligible Road Surface Conditions

- Excellent 9 & 10: 11%
- Good 7 & 8: 60%
- Fair 6: 21%
- Poor 1 – 5: 9%
Chemung County Pavement Assessment Scoring Results

Table 2

Summary of Miles by Condition 2021

<table>
<thead>
<tr>
<th>Chemung County Federal Aid Eligible Roads</th>
<th>Miles</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent 9 &amp; 10</td>
<td>7</td>
<td>8%</td>
</tr>
<tr>
<td>Good 7 &amp; 8</td>
<td>55</td>
<td>66%</td>
</tr>
<tr>
<td>Fair 6</td>
<td>15</td>
<td>18%</td>
</tr>
<tr>
<td>Poor 1 – 5</td>
<td>7</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Total Roads Scored</strong></td>
<td><strong>84</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

NOTE: Mileages & percentages have been rounded to whole number

Chart 2

2021 Chemung County Federal Aid Eligible Road Surface Conditions
### City of Elmira Pavement Assessment Scoring Results

#### Table 3

Summary of Miles by Condition 2021

<table>
<thead>
<tr>
<th>City of Elmira Federal Aid Eligible Roads</th>
<th>Miles</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent 9 &amp; 10</td>
<td>3</td>
<td>8%</td>
</tr>
<tr>
<td>Good 7 &amp; 8</td>
<td>17</td>
<td>51%</td>
</tr>
<tr>
<td>Fair 6</td>
<td>10</td>
<td>29%</td>
</tr>
<tr>
<td>Poor 1 - 5</td>
<td>4</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Total Roads Scored</strong></td>
<td><strong>34</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

NOTE: Mileages have been rounded to the nearest half & percentages have been rounded to nearest half

#### Chart 3

2021 City of Elmira Road Surface Conditions
Other Locally Owned Federal Aid Eligible Roadways

Table 4

Summary of Miles by Condition 2021

<table>
<thead>
<tr>
<th>All other Federal Aid Eligible Roads</th>
<th>Miles</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent 9 &amp; 10</td>
<td>5</td>
<td>23%</td>
</tr>
<tr>
<td>Good 7 &amp; 8</td>
<td>11</td>
<td>54%</td>
</tr>
<tr>
<td>Fair 6</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Poor 1 - 5</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>Total Roads Scored</td>
<td>21</td>
<td>100%</td>
</tr>
</tbody>
</table>

NOTE: Mileages & percentages have been rounded to whole number

Chart 4

2021 All other Local Federal Aid Eligible Road Surface Conditions
Table 5

Non-State Federal Aid Eligible Roads

2021 Mileage

Condition by NYS DOT Functional Classification

<table>
<thead>
<tr>
<th>Functional Class</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Excellent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 Rural Major Collector</td>
<td>5</td>
<td>4</td>
<td>20</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>14 Principal Arterial</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>16 Urban Minor Arterial</td>
<td>2</td>
<td>15</td>
<td>22</td>
<td>5</td>
<td>44</td>
</tr>
<tr>
<td>17 Urban Major Collector</td>
<td>2</td>
<td>8</td>
<td>40</td>
<td>4</td>
<td>54</td>
</tr>
</tbody>
</table>

NOTE: All mileages have been rounded

2021 Mileage Percentage

<table>
<thead>
<tr>
<th>Functional Class</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Excellent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 Rural Major Collector</td>
<td>16%</td>
<td>12%</td>
<td>59%</td>
<td>14%</td>
<td>100%</td>
</tr>
<tr>
<td>14 Urban Principal Arterial</td>
<td>36%</td>
<td>18%</td>
<td>35%</td>
<td>12%</td>
<td>100%</td>
</tr>
<tr>
<td>16 Urban Minor Arterial</td>
<td>5%</td>
<td>34%</td>
<td>49%</td>
<td>11%</td>
<td>100%</td>
</tr>
<tr>
<td>17 Urban Major Collector</td>
<td>4%</td>
<td>15%</td>
<td>73%</td>
<td>8%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note: All percentages have been rounded.
5 Year Analysis of Non-State Federal-Aid Eligible Roads

The Elmira-Chemung Transportation Council has assessed the pavement condition of the Non-State Federal-Aid Eligible Road System for the past 5 years. The 5 years of pavement condition scores allow the opportunity to see how and where the pavement condition is improving and where further analysis of the conditions are needed.

Chart 5 provides a comparison of all 139 miles of Non-State Federal-Aid Eligible Highways from 2017 through 2021. In 2017 there were 17 miles of roads which received an ‘Excellent’ rating. This number increased 18 miles or 105.9% in 2018 and decreased by 14 miles to 21, or 40%, in 2019. The number of excellent rated roads decreased by 7 miles in 2020, or 33.3%. In 2021, the number of roads rated as Excellent increased to 15, or 7.1%. The number of roads rated as ‘Good’ in 2017 was 76 miles, the number decreased by 20 miles or 26.3% to 56 miles in 2018 and then increased by 18 miles, or 32.1%, in 2019. The number of roads rated as “Good” in 2020 was 78, an increase of 4 miles, or 5.4%. In 2021, the roads rated as Good rose to 84 miles, an increase of 7.7%. The number of roads rated as ‘Fair’ was 34 miles in 2017. The number of ‘Fair’ miles increased by 4 miles or 11.8% to 38 miles in 2018 and decreased by 4 miles to 34 total miles, or 10.5%, in 2019. The number of roads rated as ‘Fair’ in 2020 decreased by 2 miles to 32 total miles, or 5.9% and decreased by 3 more miles in 2021, or 9.4%. The number of roads rated ‘Poor’ was 14 miles in 2017. In 2018 the roads decreased by 1 mile or 7.1% and in 2019 decreased again by 2 miles, or 15.4%. In 2020, the number of roads rated as ‘Poor’ was 16 miles, an increase of 5 miles, or 45.5%. The number of roads rated as Poor decreased by 4 miles in 2021 to 12 total miles, a decrease of 25%.

Chart 5

Note: Mileages have been rounded to the whole number
5 Year Analysis of County Owned Federal-Aid Roads

Chart 6 provides a comparison of all 84 miles of County Owned Federal-Aid Eligible Roads from 2017 through 2021. In 2017 there were 11 total miles rated as ‘Excellent’, this number increased 18 miles or 172.7% in 2018 and then decreased by 15 miles, or 51.7% in 2019. The number of roads rated as ‘Excellent’ in 2020 was 6 miles, a decrease of 8 miles, or 57.1%. In 2021, the number of roads rated as Excellent increased by 1 to 7 miles, or 16.7%. The number of roads rated as ‘Good’ in 2017 was 43 miles. The number of good miles decreased by 15 miles or 34.9% to 28 miles in 2018 and increased to 47 miles in 2019, or 67.9%. The number of roads rated as ‘Good’ in 2020 increased to 51 miles, or 8.5% and increased to 55 miles in 2021, or 7.8%. The number of roads rated as ‘Fair’ was 24 miles in 2017. The number of ‘Fair’ miles decreased by 1 mile or 4.2% to 23 miles in 2018, decreased again by 4 miles in 2019 to 19 total miles, or 17.4% and decreased by 1 mile in 2020 to 18 total miles, or 5.3%. The number of Fair miles decreased by 3 miles in 2021 to 15 total miles, a decrease of 16.7%. The number of roads rated ‘Poor’ in 2017 was 7 miles. This number decreased by 1 mile or 14.3% to 6 miles in 2018, decreased again by 1 mile in 2019, or 16.7%, for a total of 5 miles, but increased by 4 miles in 2020, totaling 9 miles for an 80% increase. The number of Poor roads decreased by 2 miles in 2021 to 7 total miles, for a decrease of 22.2%.

In Chart 6 is a breakdown of the miles by rating for the County owned Federal Aid Eligible roads in Chemung County.

Chart 6
5 Year Analysis of City Owned Federal-Aid Eligible Roads

Chart 7 provides a comparison of all 34 miles of City Owned Federal-Aid Eligible Roads from 2017 through 2021. In 2017 there were 4 miles of roads which received an ‘Excellent’ rating. This number decreased 1 mile to 3 miles or 25% in 2018, decreased by 1 mile in 2019, or 33.3% and remained at 2 total miles in 2020. The number increased to 3 total miles in 2021, an increase of 50%. The number of roads rated as ‘Good’ in 2017 was 19 miles, the mileage decreased by 2 miles or 10.5% to 17 miles in 2018 and decreased by 1 mile or 5.9% to 16 miles in 2019. The total miles of roads rated as ‘Good’ remained at 16 miles in 2020. The total miles rated Good increased by 1 to 17 miles in 2021, or 6.25%. The number of roads rated as ‘Fair’ was 6 miles in 2017. The number increased by 4 miles or 66.7% to 10 miles in 2018, increased by 1 mile or 10% to 11 miles in 2019 and decreased back to 10 miles in 2020, or 9.1%. In 2021, the number of roads rated as Fair stayed steady at 10 miles. The number of roads rated ‘Poor’ was 6 miles in 2017, decreased by 1 mile or 16.7% to 5 miles in 2018 and remained at 5 miles in 2019. The total number of roads rated as ’Poor’ in 2020 increased to 6 miles, or 20% and decreased by 2 miles in 2021 to 4 total miles, or 33.3%.

Chart 7 is a breakdown of the miles by rating for the City of Elmira owned Federal Aid Eligible roads.

Chart 7

Note: Mileages have been rounded to whole number
5 Year Analysis of All Other Locally Owned Federal-Aid Eligible Roads

Chart 8 provides a comparison of 21 miles of All Other Locally Owned Federal-Aid Eligible Roads from 2017 through 2021. In 2017 there were 2 miles of roads which received an ‘Excellent’ rating. This number increased 1 mile to 3 miles or 50% in 2018 and increased by 2 miles in 2019, or 66.7%, to 5 total miles. The number of roads rated as ‘Excellent’ in 2020 and 2021 remained at 5 miles. The number of roads rated as ‘Good’ in 2017 was 13 miles. The number of good miles decreased by 2 miles or 15.4% to 11 total miles in 2018 and decreased 1 mile or 9.1% to 10 miles in 2019. The number of ‘Good’ roads remained steady at 10 total miles in 2020 and increased by 1 mile in 2021 to 11 total miles, or an increase of 10%. The number of roads rated as ‘Fair’ was 4 miles in 2017, increased by 1 mile or 25% to 5 miles in 2018 and then decreased by 1 mile in 2019, or 20%. The number of ‘Fair’ roads remained at 4 miles in 2020 and 2021. The number of roads rated ‘Poor’ in 2017 was 1 mile. In 2018 the number of roads rated as poor increased by 1 mile or 100% to 2 total miles and in 2019 the number decreased to 1 mile, or 50%. The number of ‘Poor’ rated roads remained at 1 total mile in 2020 and 2021.

Chart 8 is a breakdown of miles by rating for the remaining 21 miles of locally owned Federal Aid Eligible roads in Chemung County.

Chart 8

Note: Mileages have been rounded to whole number
Functional Class 5 year comparison

Charts 9 through 12 breakdown the condition of federal aid eligible roads by functional class type for 2017 through 2021 pavement assessments.

Chart 9

Note: Mileages have been rounded to whole number

Chart 10

Note: Mileages have been rounded to whole number
Chart 11

Note: Mileages have been rounded to whole number

Chart 12

Note: Mileages have been rounded to whole number
2021 & 2020 NON-STATE FEDERAL AID ELIGIBLE ROAD CONDITIONS IN THE URBANIZED AREA OF CHEMUNG COUNTY

Legend

Pavement Condition Rating

<table>
<thead>
<tr>
<th>Year</th>
<th>Rating</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>9 - 10 Excellent</td>
<td>Black</td>
</tr>
<tr>
<td>2021</td>
<td>7 - 8 Good</td>
<td>Green</td>
</tr>
<tr>
<td>2021</td>
<td>6 - Fair</td>
<td>Yellow</td>
</tr>
<tr>
<td>2021</td>
<td>5 - Poor</td>
<td>Red</td>
</tr>
<tr>
<td>2020</td>
<td>9 - 10 Excellent</td>
<td>Black</td>
</tr>
<tr>
<td>2020</td>
<td>7 - 8 Good</td>
<td>Green</td>
</tr>
<tr>
<td>2020</td>
<td>6 - Fair</td>
<td>Yellow</td>
</tr>
<tr>
<td>2020</td>
<td>5 - Poor</td>
<td>Red</td>
</tr>
</tbody>
</table>

Prepared: 12/8/2021
2021 & 2020 NON-STATE FEDERAL AID ELIGIBLE ROAD CONDITIONS FOR THE CITY OF ELMIRA

Legend
Pavement Condition Rating
2021
9 - 10 Excellent
7 - 8 Good
6 - Fair
5 or less - Poor

2020
9-10 Excellent
7-8 Good
6 - Fair
5 or less - Poor

PREPARED: 12/9/2021
2021 & 2020 NON-STATE FEDERAL AID ELIGIBLE ROAD CONDITIONS IN THE TOWNS OF ASHLAND, BALDWIN, CHEMUNG, ERIN AND VAN ETten

Legend
Pavement Condition Rating

2021
- 9 - 10 Excellent
- 7 - 8 Good
- 6 - Fair
- 5 - Poor

2020
- 9 - 10 Excellent
- 7 - 8 Good
- 6 - Fair
- 5 - Poor

Prepared: 12/9/2021
Addendum A

The roadways of the County of Chemung and City of Elmira in Chemung County, NY

Overall Results

359 miles of roadway were scored in Chemung County, NY in 2021. Of the 359 miles, 244 miles are County roads and 115 miles are City roads.

The Chemung County pavement conditions were as follows: 25 miles or 10% excellent, 160 miles or 66% good, 39 or 16% fair and 20 miles or 8% poor.

The City of Elmira pavement conditions were as follows: 21 miles or 18% excellent, 43 miles or 37% good, 20 miles or 18% fair and 31 miles or 27% poor.

NOTE: Mileages and percentages are rounded and are what the ECTC assessed, for official mileages refer to the NYSDOT Local Highway Inventory. Mileage did decrease due to LECOM housing, as well as removing street segments that no longer exist, The Lowman Crossover isn’t drivable, part of the old Sullivanville Rd isn’t maintained any longer and errors in data/duplicate line segments.
Table 1

Summary of Miles by Condition 2021

<table>
<thead>
<tr>
<th>Chemung County Roads</th>
<th>Miles</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent 9 &amp; 10</td>
<td>25</td>
<td>10%</td>
</tr>
<tr>
<td>Good 7 &amp; 8</td>
<td>160</td>
<td>66%</td>
</tr>
<tr>
<td>Fair 6</td>
<td>39</td>
<td>16%</td>
</tr>
<tr>
<td>Poor 5 &gt;</td>
<td>20</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Total Roads Scored</strong></td>
<td><strong>244</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

NOTE: Mileages & percentages have been rounded to the whole number.

Chart 1

2021 Chemung County Road Surface Conditions
# City of Elmira Pavement Assessment Scoring Results

## Table 2

**Summary of Miles by Condition 2021**

<table>
<thead>
<tr>
<th>City of Elmira Roads</th>
<th>Miles</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent 9 &amp; 10</td>
<td>21</td>
<td>18%</td>
</tr>
<tr>
<td>Good 7 &amp; 8</td>
<td>43</td>
<td>37%</td>
</tr>
<tr>
<td>Fair 6</td>
<td>20</td>
<td>18%</td>
</tr>
<tr>
<td>Poor 5</td>
<td>31</td>
<td>27%</td>
</tr>
<tr>
<td><strong>Total Roads Scored</strong></td>
<td><strong>115</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

NOTE: Mileages & percentages have been rounded to whole number

## Chart 2

**2021 City of Elmira Road Surface Conditions**

![Pie chart showing road conditions](image)
5 Year Analysis

The Elmira-Chemung Transportation Council also assesses the pavement condition of all County of Chemung and City of Elmira roadways when the Non-State Federal-Aid Eligible Roadways are being assessed, to include the most recent 5 year period. Having five consistent years of pavement condition scores allows the opportunity to see how and where the pavement condition is improving and where further analysis of the condition is needed.

Chart 3 provides a comparison of all 244 miles of Chemung County owned roads from 2017 through 2021. In 2017 there were 51 miles of roads which received an ‘Excellent’ rating. In 2018, the number of excellent roads increased by 3.9% or 2 miles to 53 miles and in 2019 the number of excellent miles decreased by 30 miles, or 56.6%. In 2020, the number of excellent roads decreased by 4 miles to 19 total miles, or 17.4%. In 2021, the number of Excellent miles increased by 6 miles to 25, an increase of 31.6%. The number of roads rated as ‘Good’ in 2017 was 125 total miles and decreased in 2018 by 1.6% or 2 miles to 123 miles and then increased by 38 miles to 161 miles or 30.9% in 2019. ‘Good’ mileage decreased in 2020 by 4 miles to 157 miles total, or a decrease of 2.5%. The Good mileage then increased in 2021 to 160 miles, or an increase of 1.9%. The number of roads rated as ‘Fair’ was 48 miles in 2017. In 2018 the number of miles rated as fair increased by 4.2% or 2 miles to 50 total miles and the number of miles decreased by 8 miles or 16% in 2019. The number of ‘Fair’ rated roads increased to 45 miles in 2020, or 7.1% and then decreased to 39 total miles, or a decrease of 13.3%. The number of roads rated ‘Poor’ in 2017 was 22 miles. The number of miles rated as poor decreased in 2018 by 1 mile or 4.6% to 21 miles and the number of poor miles decreased again by 2 miles in 2019, or 9.5%. The number of ‘Poor’ rated miles increased by 6 miles to 25 total miles in 2020, or 31.6% and then decreased in 2021 to 20 miles, or 20%.

Chart 4 provides a comparison of all 115 miles of City owned roads from 2017 through 2021. In 2017 there were 13 miles of roads which received an ‘Excellent’ rating. In 2018 the number of roads rated as excellent decreased by 3 miles or 30% to 10 miles and the number of excellent roads remained at 10 miles in 2019. In 2020, the number of roads rated as ‘Excellent’ increased by 5 miles to 15 total miles, or 50% and in 2021 the number of Excellent roads increased by 40% to 21 total miles. The number of roads rated as ‘Good’ in 2017 was 40 miles. In 2018 the number of good roads decreased by 2.5% or 1 mile to 39 miles and increased by 3 miles to 42 in 2019 or 7.7%. The number of ‘Good’ rated roads remained at 42 total miles in 2020 and then increased by 1 mile to 43 total miles in 2021, an increase of 2.4%. The number of roads rated as ‘Fair’ was 20 miles in 2017. In 2018 the number of roads rated as fair increased by 10% or 2 miles to 22 miles and in 2019 the number of roads increased by 1 mile, or 4.5%, to 23 miles. The number of ‘Fair’ roads decreased by 1 mile in 2020 to 22 miles, or 4.3% and fell another 2 miles in 2021 to 20 total miles, or 9.1%. The number of roads rated ‘Poor’ in 2017 was 45 total miles. In 2018 the number of miles rated poor increased by 1 mile, or 2.2% to 46 miles. In 2019 the number of miles rated as poor decreased by 4 miles, or 8.7%, to 42 total miles and decreased again by 5 miles in 2020 to 37 total miles, or 11.9%. In 2021, the number of Poor miles decreased again by 6 miles to 31 total miles, or 16.2%.

See next page for charts for Chemung County and City of Elmira 2017 – 2021 roadways comparisons.
Note: Mileages have been rounded to whole number

Chart 3

Chart 4

Note: Mileages have been rounded to whole number