



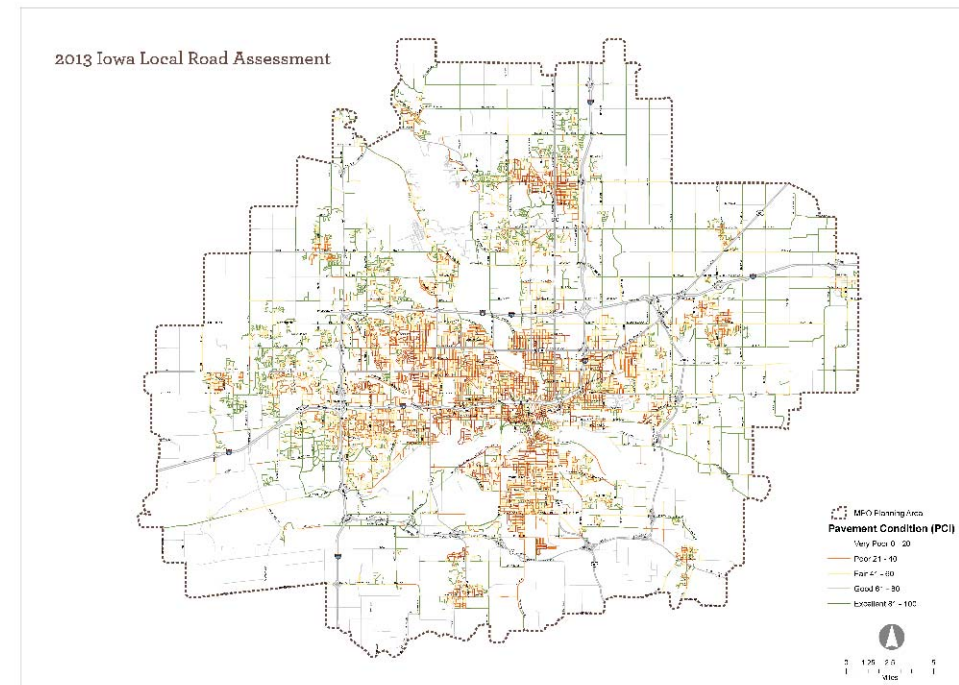
DES MOINES AREA MPO/CIRTPA

Reporting and Pavement Management in Central Iowa

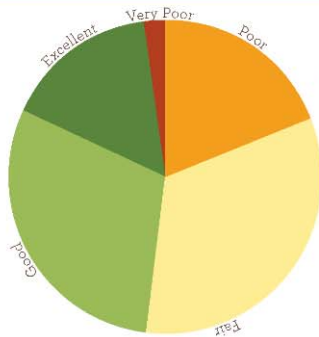
March 27, 2019

MPO Data Reporting

- First data used was 2013
- Staff created a comprehensive report detailing current and projected road conditions
- dTIMS was also used to estimate maintenance needs over a 10-year period
- Current and projected maintenance expenditures were compared with the dTIMS results to identify any deficit/surplus maintenance expenditures



REGIONAL Pavement Quality

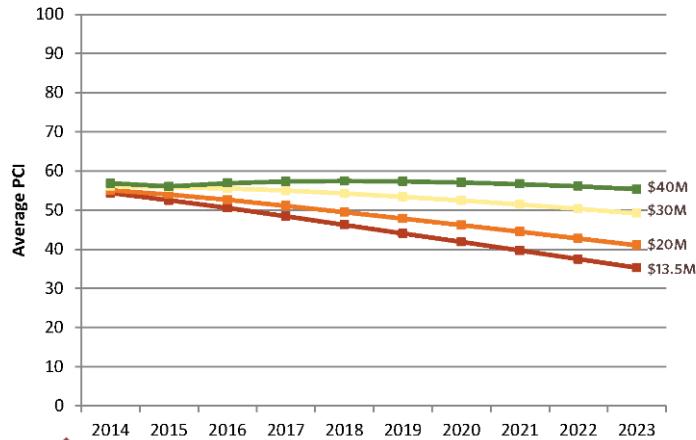


18 percent of roads in the MPO are classified as being in poor or very poor condition¹

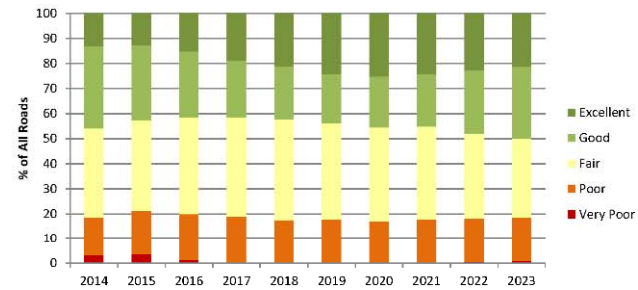
Average PCI for the region: **60**

*Numbers above represent all roads, including DOT roads

AVERAGE CONDITION (PCI) BY BUDGET SCENARIO



2050 TARGET: MAINTAIN CURRENT PAVEMENT QUALITY



\$40 MILLION

is the amount of funding needed each year to maintain current pavement conditions in the region

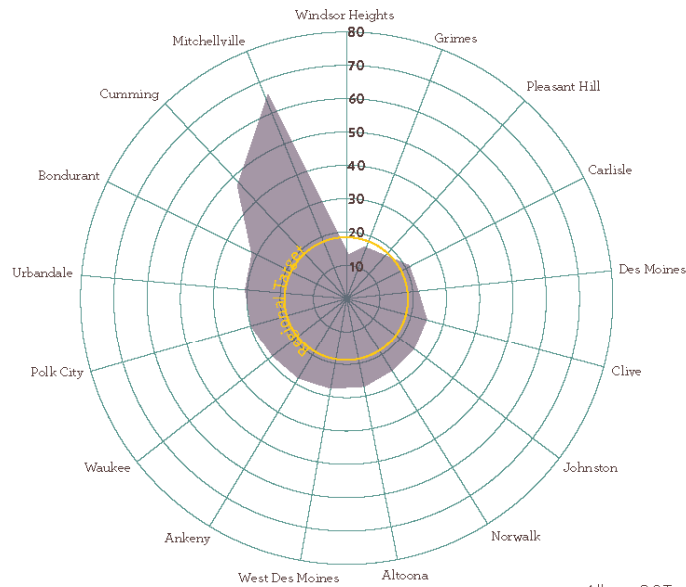
Currently, the region spends about **\$30** MILLION²

Data Sources: 1. 2012 Iowa Pavement Management Program, Pavement Management Information System
2. Street Financial Reports, Iowa DOT

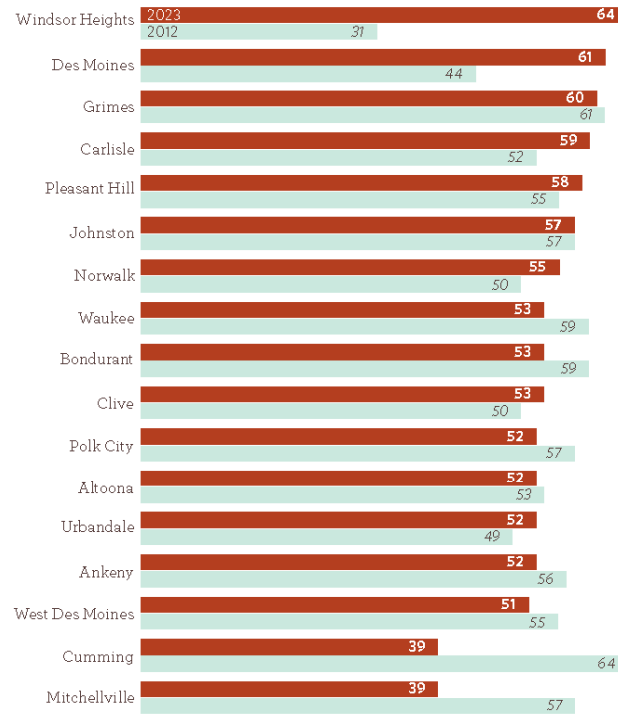
LOCAL Conditions

Using current funding levels, just **3** cities maintain their pavement conditions under the **regional target** through 2023.

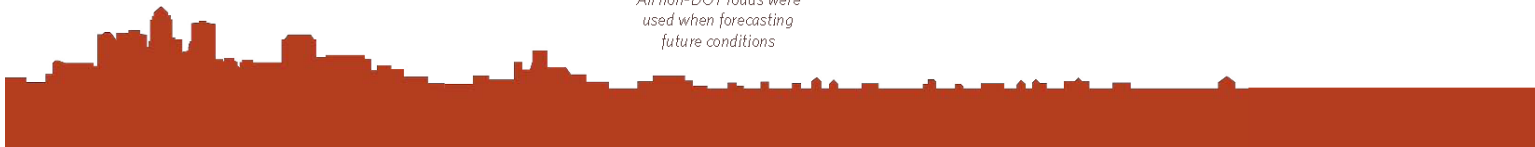
PERCENT POOR OR WORSE WITH CURRENT FUNDING LEVELS, 2023



AVERAGE PCI WITH CURRENT FUNDING LEVELS



All non-DOT roads were used when forecasting future conditions



LOCAL Conditions



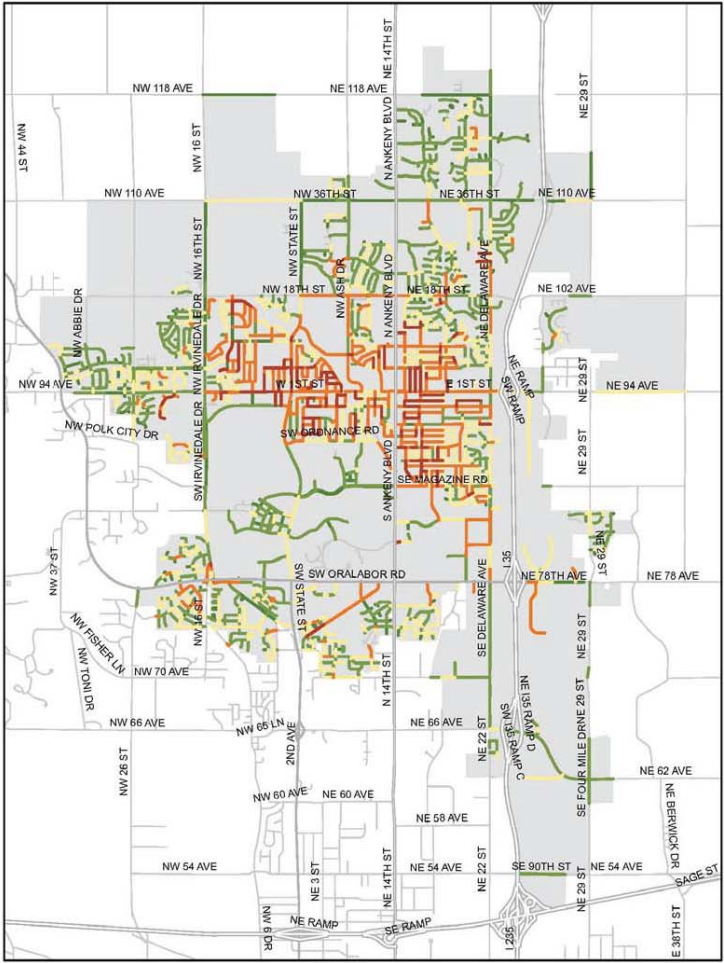
PCI RATING: PERCENT OF TOTAL MILES



Current funding levels were used to forecast 2023 conditions



2013 LOCAL ROAD ASSESSMENT

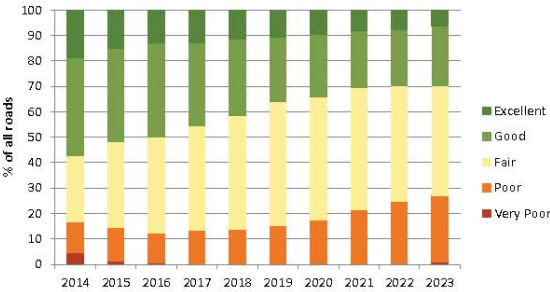


CITY OF ANKENY

Annual Maintenance (6-Year Average): \$1,544,627

Miles of Road Measured: 207

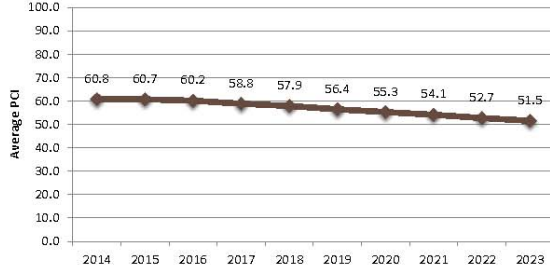
PAVEMENT QUALITY



Percent of Roads in Poor or Worse Condition

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Percent	16.7	14.6	12.3	13.4	13.7	15.3	17.4	21.5	24.9	26.9

AVERAGE CONDITION (PCI)



MPO Data Reporting

- Subsequent reports did not include forecasting elements
- Focus on changes over time and relating back to the Long-Range Transportation Time
- Initial report included information from the I-DOT's City Street Finance Reports
- Several cities questioned numbers used for maintenance expenditures

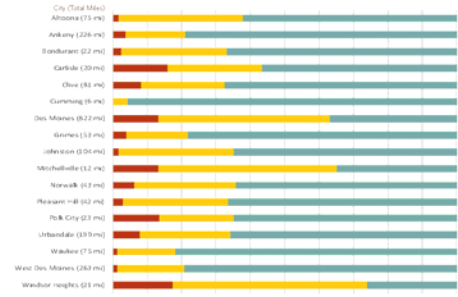
PAVEMENT CONDITION

Pavement Condition Index by Percent of Total Miles

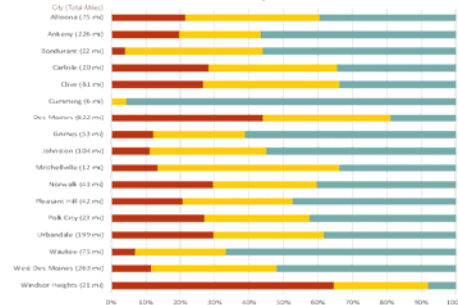
The charts below show the percent of miles of roadway by condition and city using the new City PCI and older PCI calculations. On-going monitoring of pavement condition is needed for roadway maintenance planning. Because of how the data is collected, miles shown below will differ from roadway miles calculated from other sources.

Interactive map of pavement conditions is available at: dmampo.org/maps

New 2017 City PCI Calculation



Old 2017 PCI Calculation (Illustrative Only)



Cost of Poor Roads

A November 2016 report by TRIP, a national transportation research group, examined the cost of additional vehicle maintenance due to roads in fair or worse conditions. The report finds that nationally the average motorist spends \$532 annually due to poor road conditions. In the Des Moines region, the report found that motorists pay \$705 in additional maintenance, approximately \$173 more than the national average.

\$532
Average Additional Vehicle Maintenance Cost in 2015 (Nationally)

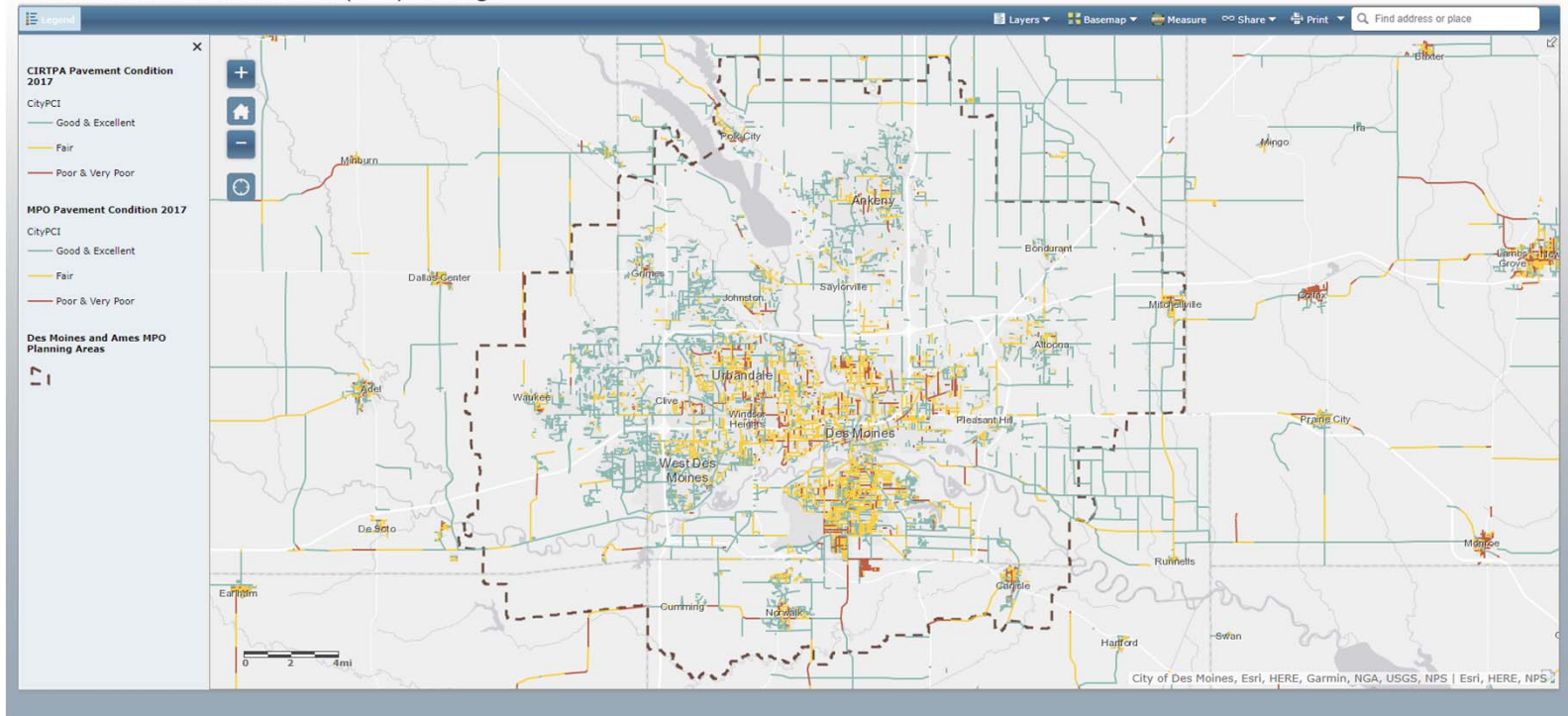
\$705
Average Additional Vehicle Maintenance Cost in 2015 (Des Moines Area)

Poor or Very Poor
Fair
Good or Excellent

Source: Iowa Pavement Management Program, 2017
*Does not include state roads

Data Availability

Pavement Condition Index (PCI) Ratings



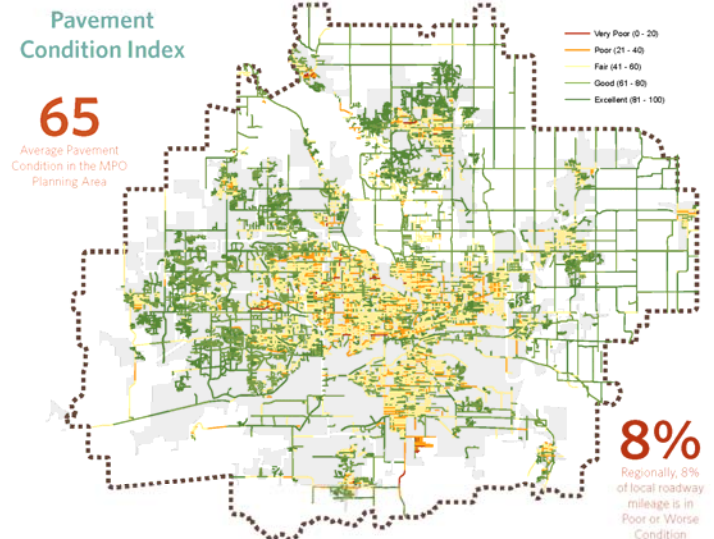
Future Reporting

- Currently updating the MPO Long-Range Transportation Plan
- Update to the 2013 data report
- Support the adoption of pavement management software and policies in local jurisdictions
- Working with the City of Altoona to incorporate this data into their programming processes

PAVEMENT CONDITION



Mobilizing Tomorrow defines several performance measures to determine how well the region is achieving its goal to manage and optimize transportation infrastructure and services. One of these measures is to maintain pavement condition at base year levels. Between 2013 and 2017, the region saw a 8 percent reduction in average pavement condition.



GOAL	MEASURE	DATA (OLD PCI*)	2050 TARGET	GOAL	ACTUAL	TREND (OLD CALCULATION*)
Pavement Condition Index (PCI)	Average Pavement Condition Index	2013: 71 (60) 2017: 65 (55)	Maintain	➔	⬇️	-8% (-8%)
	% Roads in Poor or Worse Condition	2013: 3% (18%) 2017: 8% (27%)	Maintain	➔	⬆️	5% (9%)

Source: Road Pavement Management Program, 2013 & 2017

*The way PCI is calculated has changed and is explained further on the following pages.

CIRTPA Data Reporting

- First data used was 2015
- First report created in 2016
- Report developed in similar format to MPO reports
- Did not include forecasting elements

PAVEMENT CONDITION

Cost of Poor Roads

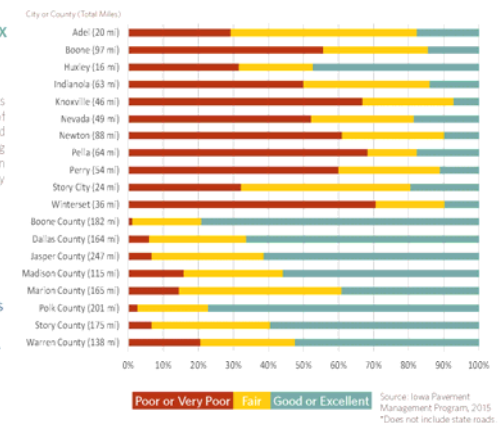
A November 2016 report by TRIP, a national transportation research group, examined the cost of additional vehicle maintenance due to roads in fair or worse conditions. The report finds that nationally the average motorist spends \$532 annually due to poor road conditions.

\$532 Average Additional Vehicle Maintenance Cost in 2015 (Nationally)

Pavement Condition Index by Percent of Total Miles

The table to the right shows the percent of miles of roadway by condition and city. On-going monitoring of pavement condition is needed for roadway maintenance planning.

Interactive map of pavement conditions is available at: dmampo.org/maps

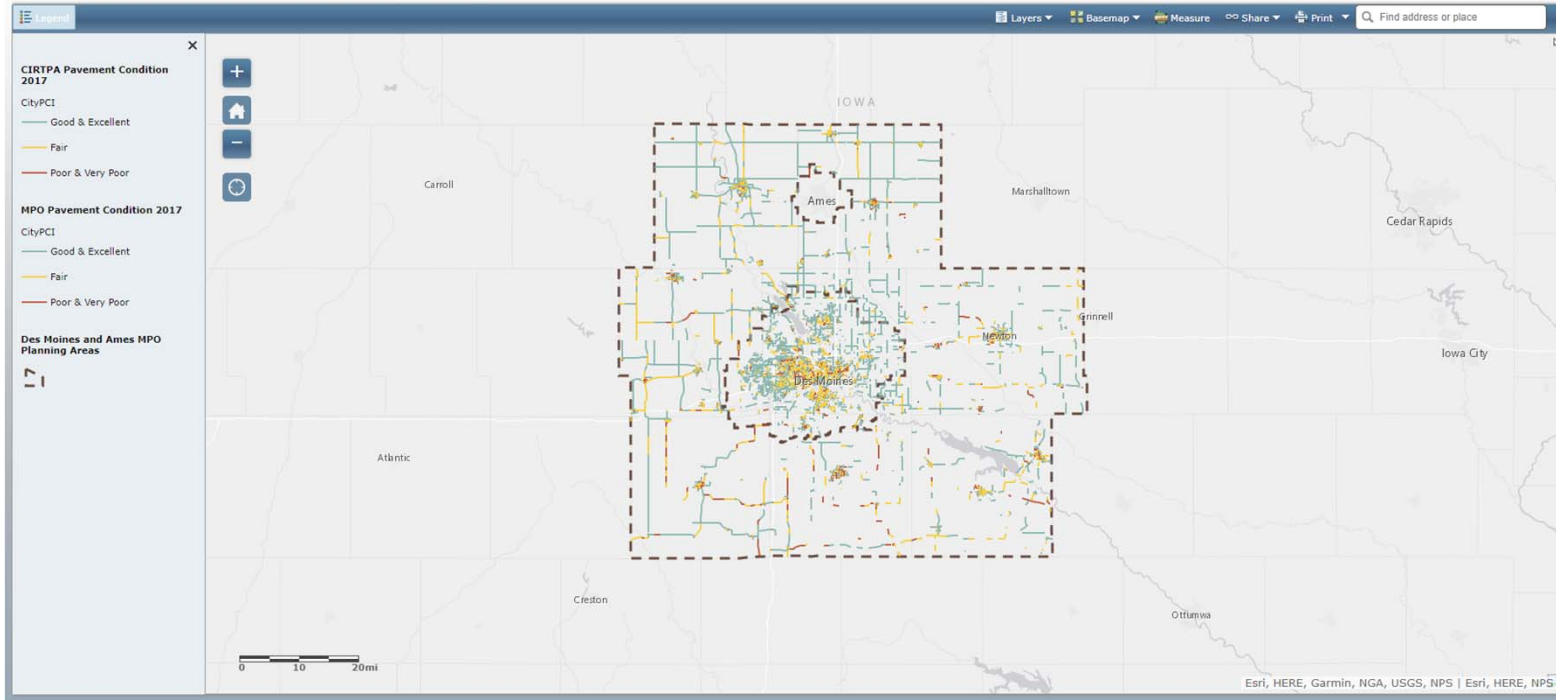


Iowa Pavement Management Program

Each year, the Institute for Transportation at Iowa State University (InTrans) collects pavement condition data for roads in Iowa. As part of this data collection, InTrans records cracking, defects, surface type, and other roadway attributes that are used to manage the roadway network. With the collected data, InTrans provides a Pavement Condition Index (PCI), ranging from zero to one hundred, which represents the level of quality users should expect while driving on the roadways.

Data Availability

Pavement Condition Index (PCI) Ratings



CIRTPA Local dTIMS Implementation

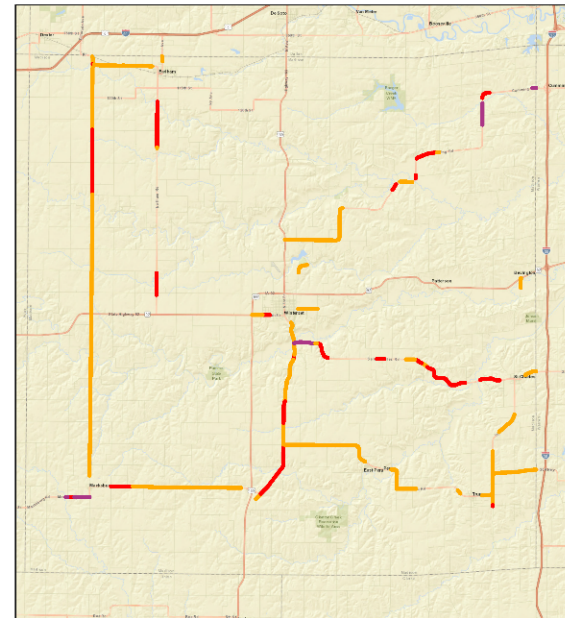
- In 2017 CIRTPA discussed the possibility of utilizing dTIMS for local use rather than just regional analysis
- Working with Inya, CIRTPA purchased individual licenses for four counties and two cities and the rest were included on a regional license
- Staff would hold the regional license and run the dTIMS program for communities
- Individual communities are free to use dTIMS on their own

The screenshot displays the dTIMS 5.5 For Windows application window. The main area contains a data table with the following columns: ID, Name, Length, and several unlabeled numerical columns. The table lists various street segments with their respective IDs and names, such as 1000M AVENUE_4838_1 and 1000M AVENUE_4838_2. The interface includes a menu bar at the top, a toolbar, and a sidebar on the left with navigation options like 'Networks & Data', 'Inventory', and 'Table Hierarchy'. A 'Map Legend' panel is visible on the right side of the window.

ID	Name	Length	NUM1	NUM2	NUM3	NUM4	NUM5	NUM6	NUM7
1000M AVENUE_4838_1	1000M AVENUE_4838_1	0.888769	0.888769	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M AVENUE_4838_2	1000M AVENUE_4838_2	0.932229	0.932229	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_1	1000M STREET_3248_1	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_2	1000M STREET_3248_2	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_3	1000M STREET_3248_3	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_4	1000M STREET_3248_4	0.894232	0.894232	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_5	1000M STREET_3248_5	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_6	1000M STREET_3248_6	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_7	1000M STREET_3248_7	0.370781	0.370781	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_8	1000M STREET_3248_8	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_9	1000M STREET_3248_9	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_10	1000M STREET_3248_10	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_11	1000M STREET_3248_11	0.370781	0.370781	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_12	1000M STREET_3248_12	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_13	1000M STREET_3248_13	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_14	1000M STREET_3248_14	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_15	1000M STREET_3248_15	0.370781	0.370781	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_16	1000M STREET_3248_16	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_17	1000M STREET_3248_17	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_18	1000M STREET_3248_18	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_19	1000M STREET_3248_19	0.370781	0.370781	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_20	1000M STREET_3248_20	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_21	1000M STREET_3248_21	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_22	1000M STREET_3248_22	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_23	1000M STREET_3248_23	0.370781	0.370781	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_24	1000M STREET_3248_24	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_25	1000M STREET_3248_25	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_26	1000M STREET_3248_26	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_27	1000M STREET_3248_27	0.370781	0.370781	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_28	1000M STREET_3248_28	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_29	1000M STREET_3248_29	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_30	1000M STREET_3248_30	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_31	1000M STREET_3248_31	0.370781	0.370781	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_32	1000M STREET_3248_32	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_33	1000M STREET_3248_33	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_34	1000M STREET_3248_34	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_35	1000M STREET_3248_35	0.370781	0.370781	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_36	1000M STREET_3248_36	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_37	1000M STREET_3248_37	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_38	1000M STREET_3248_38	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_39	1000M STREET_3248_39	0.370781	0.370781	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_40	1000M STREET_3248_40	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_41	1000M STREET_3248_41	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_42	1000M STREET_3248_42	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_43	1000M STREET_3248_43	0.370781	0.370781	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_44	1000M STREET_3248_44	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_45	1000M STREET_3248_45	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_46	1000M STREET_3248_46	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_47	1000M STREET_3248_47	0.370781	0.370781	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_48	1000M STREET_3248_48	0.184827	0.184827	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_49	1000M STREET_3248_49	0.322207	0.322207	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1000M STREET_3248_50	1000M STREET_3248_50	0.396226	0.396226	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

CIRTPA Local dTIMS Implementation

- With the release of 2017 data, staff has been meeting with communities to go over the data and setup individual dTIMS accounts
- Have met with nearly all counties and cities
- Will generate baseline and forecasting reports for community use
- Example report available for review



Treatment
CPR
DL_3
SEAL

0 1 2 4 6 8 Miles



Questions?

Andrew Collings – Senior Planner

acollings@dmampo.org

515-334-0075