

PAVEMENT MANAGEMENT GROUP

TURN-KEY PAVEMENT MANAGEMENT PROGRAM



ATTN: Chris Huber, P.E.

City Engineer

City of Powell

47 Hall Street

Powell, OH 43065

September 23, 2020

SUBJECT: TURN-KEY PAVEMENT MANAGEMENT PROGRAM

Dear Mr. Huber:

The following proposal outlines the scope of services from the Pavement Management Group (PMG) to provide the City of Powell with a complete pavement management program update for your estimated 65 centerline mile street network. The following project scope tasks and associated costs have been outlined below for your review and acceptance.

Should you have any questions, please contact me to discuss at your convenience.

TASK	FEE
1. Tailored Pavement Management System and Set Up	\$1,980.00
2. Network Inventory (INITIAL ONE TIME SETUP)	\$2,925.00
3. 1080P Full HD Video of Network Inventory	\$3,250.00
4. ASTM Standard (D6433) Condition (PCI) Assessment	\$6,175.00
5. GIS Assignment, Google Earth and Streaming Video	\$2,275.00
6. Budget Needs, Scenarios and Recommendations	\$1,080.00
7. Final Project Report and On-Site Presentation	\$2,160.00
8. Data Management, Consulting & Support (1 st YEAR FREE!)	\$0.00
PROJECT TOTAL	\$19,845.00



Respectfully,

PAVEMENT MANAGEMENT GROUP

James Golden III

Principal in Charge

(740) 507-3842

James@PavementManagementGroup.com

 Purchase Order Number:

 Authorized Signature:

 Date:

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Section 1. Qualifications

Description of Firm

President and CEO James Golden III spent 14 years directing pavement management projects for a local engineering firm before founding his first pavement management company, JG3 Consulting, in 2011. In 2017, JG3 Consulting partnered with CPWG Engineering, Inc., and adopted our new name: Pavement Management Group (PMG).

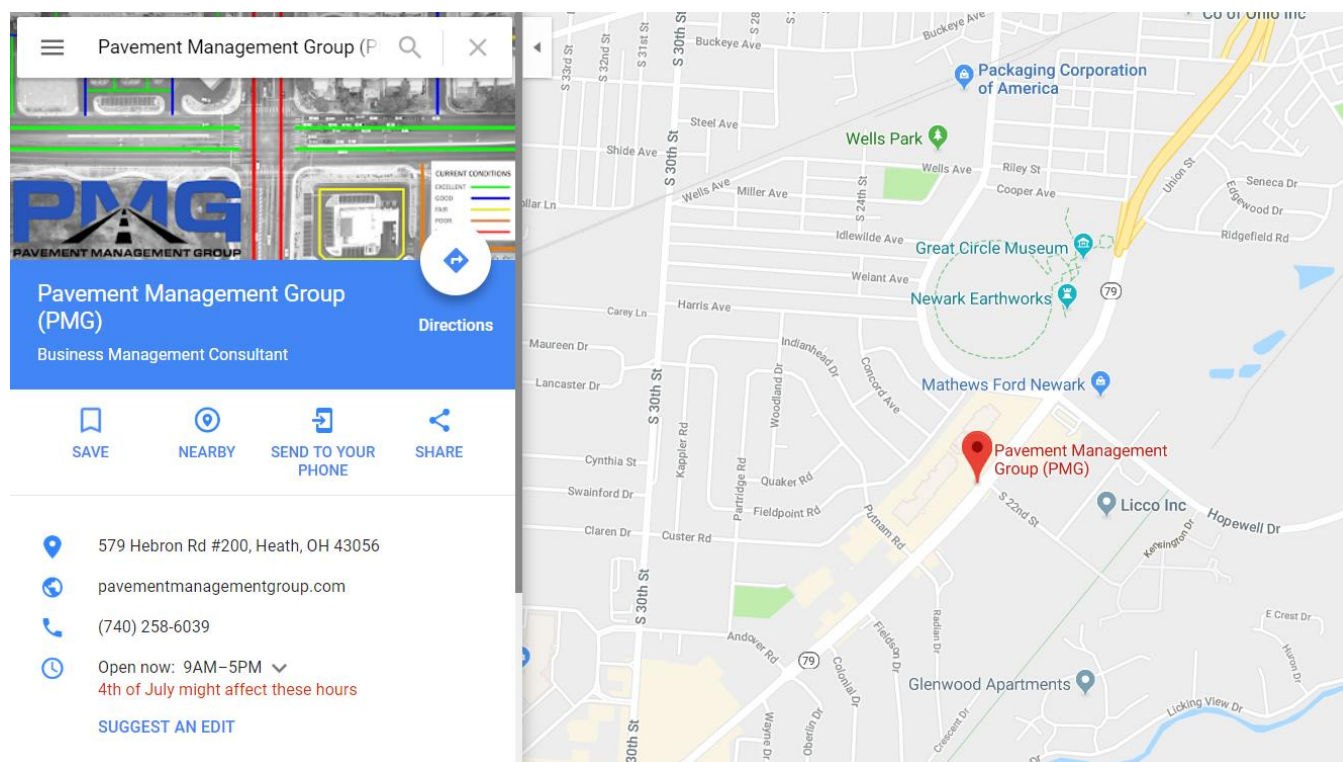
Today, PMG consults with public and private agencies throughout the United States. Our partnership enables us to provide you with a turn-key pavement management program, including engineering services.

PMG's expertise separates us from our competition.

We have extensive knowledge of:

- PAVER and StreetSaver pavement management systems (PMS)
- ASTM D6433 distress-based condition assessment
- Pavement Condition Index (PCI)
- pavement maintenance and repair

We know how to use all aspects of the PMS to develop comprehensive project plans to produce a turn-key pavement management solution, tailored to meet your agency specific needs.



Section 2. Recent Local Projects

Right now, PMG is working with more than 30 counties, cities, townships and villages nationwide. We perform more than 30,000 inspections annually on more than 2,500 centerline miles of roadways, and that number increases each year.

Here are just a few of our Ohio clients:



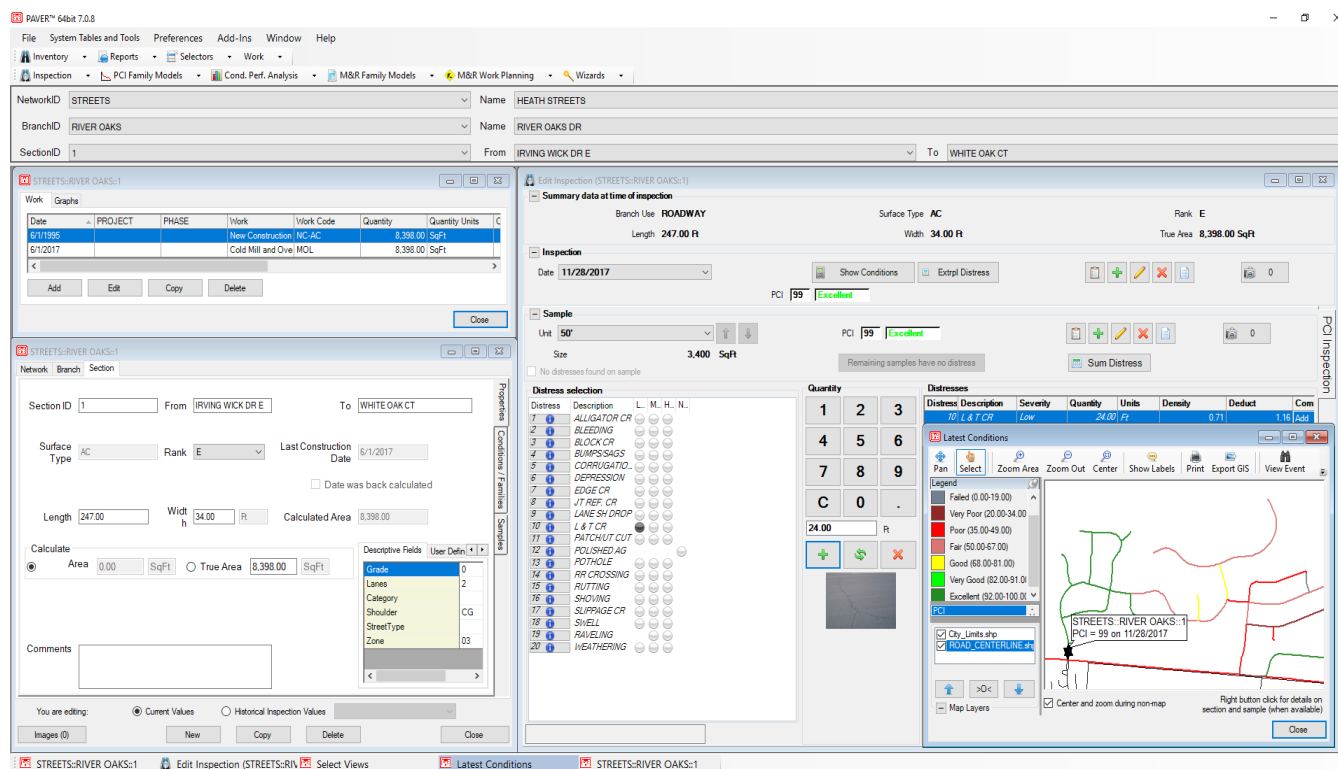
Section 3. Scope of Services

1. Tailored Pavement Management System and Set Up

We use PAVER pavement management system software to manage your street network inventory, conditions and work history. Developed by the US Army Corps of Engineers using industry standards like the ASTM D6433 inspection process and Pavement Condition Index (PCI) for pavement condition reporting, PAVER has a full array of tools for:

- Inventory Definition
- ASTM D64333 Inspection
- GIS Assignment and Mapping
- Work History Tracking
- Pavement Modeling
- Maintenance Policy Definition
- Budget and target Driven Scenarios
- Project Planning

PMG procures your PAVER software and sets up all system tables and tools to create a tailored solution for your pavement project, maintenance, and costs. We fully license and manage your PAVER subscription and database while providing onsite installation for 2 licensed users.



2. Network Inventory Definition and Set Up (Inventory and Work History Updates)

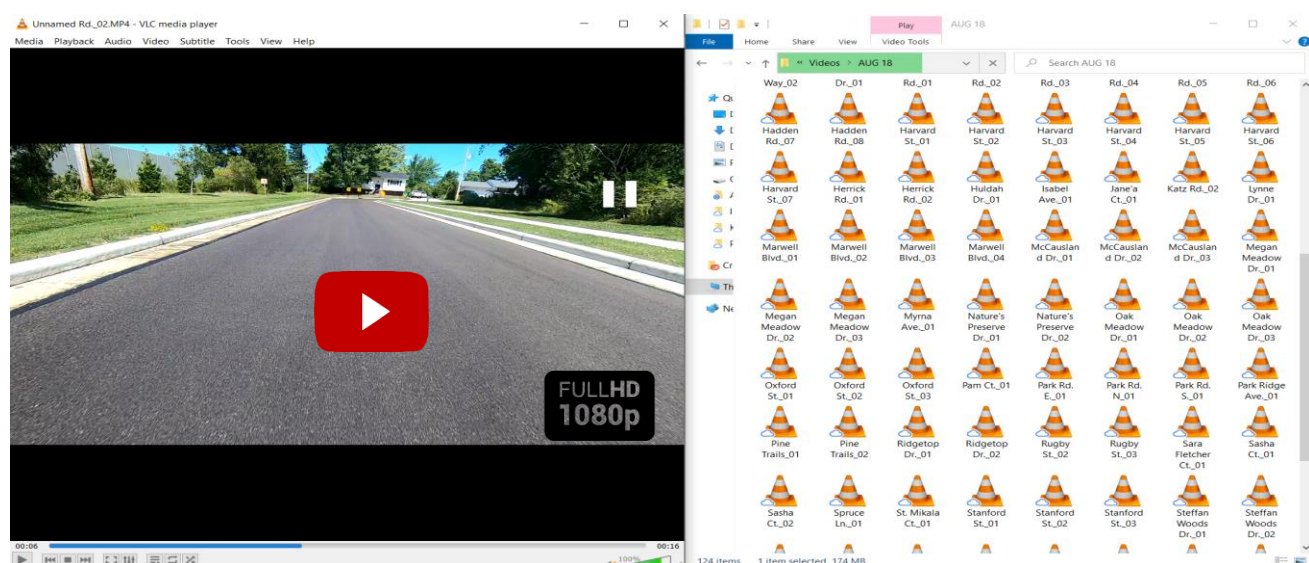
We use high-resolution aerial imagery and NearMap professional measuring tools to produce a complete and accurate inventory of your maintained street network, all within the PAVER database. For continuing services, PMG will provide accurate length, width and true area measurements for ALL sections within your Network while including any additional streets that need to be added or removed. Your street network inventory is organized by intersection with all standard attributes documented including: Section ID, From, To, Length, Width, Area, lanes, Surface, Last Construction date, Curb Type, Rank Class, etc.

Branch Name	SectionID	From	To	Length	Width	Section True Area	Surface Description - Current	Shoulder	Lanes	Zone	Date	Work Type	DATE1	PCI	PCI Category
ADAM CT	1	FULLA LN	CUL DE SAC	146	20	8,769.00	Asphalt Concrete	CG	2	02	6/1/1997	New Construction - AC	12/5/2017	42.00	Poor
AEROSPACE DR	1	CUL DE SAC	IRVING WICK DR W	1,030	20	30,130.00	Asphalt Concrete	ROL	2	02	6/1/1997	New Construction - AC	12/5/2017	84.00	Very Good
ALDINE DR	1	DEAD END E	HEBRON RD	1,143	19	21,717.00	Asphalt Concrete	ROL	2	02	6/1/1997	New Construction - AC	12/1/2017	16.00	Failed
ALPINE CIR	1	WILLOW RIDGE DR	CUMBERLAND CREST	298	24	7,152.00	Asphalt Concrete	ROL	2	03	6/1/1997	New Construction - AC	11/28/2017	70.00	Good
ALPINE CIR	2	CUMBERLAND CREST	WILLOW RIDGE DR	1,376	24	33,024.00	Asphalt Concrete	ROL	2	03	6/1/1997	New Construction - AC	11/28/2017	69.00	Good
ANDOVER RD	1	S 30TH ST	PARTIDGE RD	426	26	22,521.00	Asphalt Concrete	CG	2	01	6/1/1997	New Construction - AC	12/4/2017	45.00	Poor
ANDOVER RD	2	PARTIDGE RD	HEBRON RD	657	26	17,082.00	Asphalt Concrete	CG	2	01	6/1/1997	New Construction - AC	12/4/2017	41.00	Poor
ASH CT	1	HICKORY RD	DEAD END	250	20	5,040.00	Asphalt Concrete	ROL	2	03	6/1/1997	New Construction - AC	12/4/2017	62.00	Very Good
ASPEN CT	1	FOREST HILL RD	CUL DE SAC	436	18	7,848.00	Asphalt Concrete	ROL	2	03	6/1/1997	New Construction - AC	11/29/2017	30.00	Very Poor
BARB AVE	1	IRVING WICK DR E	S 30TH ST	948	18	17,064.00	Asphalt Concrete	ROL	2	02	6/1/1997	New Construction - AC	12/1/2017	46.00	Poor
BARB CT	2	PATRICIA LN	CUL DE SAC	620	22	13,640.00	Asphalt Concrete	ROL	2	02	6/1/1997	New Construction - AC	12/1/2017	54.00	Fair
BARB CT	1	S 30TH ST	PATRICIA LN	412	22	8,064.00	Asphalt Concrete	ROL	2	02	6/1/1997	New Construction - AC	12/1/2017	52.00	Fair
BEECH CT	1	PINE RD	DEAD END	316	18	5,688.00	Asphalt Concrete	ROL	2	03	6/1/1997	New Construction - AC	11/29/2017	77.00	Good
BERKSHIRE DR	1	BLUE JAY RD	WILLOW RIDGE DR	1,661	24	39,954.00	Asphalt Concrete	ROL	2	02	6/1/1997	New Construction - AC	11/28/2017	71.00	Good
BETTY AVE	1	DEAD END W	FRANKLIN AVE	439	16	7,024.00	Asphalt Concrete	ROL	2	03	6/1/1997	New Construction - AC	11/29/2017	53.00	Fair
BLACKFOOT TRAIL	3	HUBER DR	BLUE JAY RD	1,991	32	63,712.00	Asphalt Concrete	ROL	2	03	6/1/1997	New Construction - AC	12/29/2017	46.00	Poor
BLACKFOOT TRAIL	1	LINNVIE RD SE	S 2ND ST	265	32	8,480.00	Asphalt Concrete	CG	2	03	6/1/1997	New Construction - AC	11/29/2017	39.00	Poor
BLACKFOOT TRAIL	2	S 2ND ST	HUBER DR	832	32	26,624.00	Asphalt Concrete	ROL	2	03	6/1/1997	New Construction - AC	11/29/2017	32.00	Very Poor
BLUE JACK LN	2	RIVER OAKS DR	ENGLISH OAKS CT	801	26	20,826.00	Asphalt Concrete	CG	2	03	6/1/2017	Cold Mill and Overlay	11/28/2017	100.00	Excellent
BLUE JACK LN	1	RIVER OAKS DR	CUL DE SAC	1,032	26	26,832.00	Asphalt Concrete	CG	2	03	6/1/2017	Cold Mill and Overlay	11/28/2017	100.00	Excellent
BLUE JACK LN	4	PIN OAK LN	CUL DE SAC	149	26	3,874.00	Asphalt Concrete	CG	2	03	6/1/2017	Cold Mill and Overlay	11/28/2017	100.00	Excellent
BLUE JACK LN	3	ENGLISH OAKS CT	PIN OAK LN	524	26	13,624.00	Asphalt Concrete	CG	2	03	6/1/2017	Cold Mill and Overlay	11/28/2017	100.00	Excellent
BLUE JAY RD	6	BERKSHIRE DR	HEATH CITY LIMITS	2,063	20	41,260.00	Asphalt Concrete	ROL	2	03	6/1/1997	New Construction - AC	11/29/2017	49.00	Poor

3. 1080P Full HD Network Inventory

Our trained video capture team will leverage the complete and comprehensive inventory developed above to drive all roadways within your ownership to produce a single, 1080P full HD video for each roadway section. The process involves a driver wirelessly recording video in cabin through an externally mounted and connected GoPro camera, driving each roadway section continuously, below posted speed limits as to have little to no impact on the traveling public.

Each video captured will be renamed by Street Name and Section ID and provided on a 1TB external Hard Drive. By taking the time on our end to rename each video properly, our clients can have a fully searchable and indexed video log by both street name and section number that correlates to their street inventory beautifully. To add additional value, ease of use and simplicity, our videos are also provided in an online, map-driven manner, which is outlined in section 6 below.



4. ASTM Standard Inspection and Condition Assessment

PMG leverages the US Army Corps developed ASTM D6433 international standard for evaluating surface condition of roadways as it the most widely used and trusted process within the pavement management industry. What makes PMG unique within the blueprint unique is our ability to work on developing our machine learning and Artificial Intelligence system while also documenting your distresses types, severity levels and quantities to produce PCI's that our clients have come to rely upon and trust for their project planning needs.

Each roadway section video is first broken down into frames and the loaded into our post processing and machine learning platform. A minimum of 10% of all frames for each roadway section is then established as a project within our system. This is to match or exceed the ASTM standard recommendation of inspecting a minimum of 10% surface area for each roadway section.

A PMG trained inspector is then able to login, access the project, bring up a roadway section frame for each roadway section, and then identify all distress types, severity levels occurring within that frame. This process is repeated for all frames within the section, and then for all roadway's sections with the entire network. Once completed, all distress detailed for each section are exported from our system in an xml file format designed to work specifically with the US Army Corps Pavement Management Program. The file is imported into the system, where PAVER then calculates the PCI for all roadway sections within the entire network. We leverage PAVER for PCI calculation as the US Army Corps developed both this ASTM D6433 condition assessment process, and the PAVER system.

What can be measured can be improved. The advantage of our unique approach is that it establishes a complete and trackable process for management and quality control. Our system has metrics for progress and documenting the activity of each PMG trained inspector assigned to the project. The Quality/Project manager (James Golden) reviews the activity of all personnel to ensure the project is on time, while also auditing 5% of all inspections to ensure quality is maintained throughout.

In addition, this effort is also simultaneously working on the back end to provide our Ai algorithms the necessary distress information required for future Ai automation of this entire process. This once again demonstrates PMG's commitment to quality data within our industry by bringing the necessary ASTM D6433 based Ai to the marketplace that our current and future clients are looking for!

PAVER™ 64bit 7.0.11 - (Edit Inspection (STREETS:AGRICOLA:01))

File System Tables and Tools Preferences Add-Ins Window Help

Inventory Reports Selectors Work

Inspection PCI Family Models Cond. Perf. Analysis M&R Family Models M&R Work Planning Wizards

NetworkID: STREETS Name: RIVERSIDE STREET NETWORK

BranchID: AGRICOLA Name: AGRICOLA AVE

SectionID: 01 From: LORELLA AVE To: PRINCE ALBERT BLVD

Summary at time of inspection [Click here to minimize](#)

Branch Use: ROADWAY Surface Type: AC Rank: E Length: 316.2 Ft Width: 17 Ft True Area: 5,376.2 SqFt

Inspection [Click here to minimize](#)

3/21/2019 List New Edit Del PCI [25] FAILED Show Conditions Extrapolated Distress Cnt Ego 0

Sample [Click here to minimize](#)

01 1,600.00 SqFt List New Edit Del PCI [25] FAILED No distresses found on sample Homing samples have no distresses Cnt Ego 0

Distress selection

Distress	L	M	H	Distress	L	M	H
1 ALLIGATOR CR				11 PATCHOUT CR			
2 BLEEDING				12 POLISHED AG			
3 BLOCK CR				13 POTHOLES			
4 BUMPUPS/SDS				14 RR CROSSINGS			
5 CORROSION				15 RUTTING			
6 DEPRESSION				16 SHOVS			
7 EDGE CR				17 SLIPSPICE CR			
8 JT REPAIR CR				18 SWEEL			
9 LAKE BED UNEXP				19 TACKLING			
10 L & L CR				20 WEAR/FRASER			

Quantity

1	2	3
4	5	6
7	8	9
C	0	.

324.00 SqFt

Distresses

Distress	Description	Severity	Quantity	Units	Density	Deduct	Comment
20	WEATHERING	Medium	1,600.00	SqFt	100.00	14.89	Add
1	ALLIGATOR CR	Medium	324.00	SqFt	20.25	95.40	Add
3	BLOCK CR	Medium	1,200.00	SqFt	75.00	39.05	Add
8	JT REPAIR CR	Medium	82.00	Rt	5.13	23.42	Add

Right click distress or left click the image for Distress Help.

☐ Tablet distress entry ☐ Key shortcuts ☐ Sum Distress

TURN-KEY PAVEMENT MANAGEMENT PROGRAM

Labels 1 of 1536 or -- to change page

BUCKEYE_PKEY_04.NB.MP4_2051.png
a minute ago by dillon@pavementmanagementgroup.com

SECURITY_DR_06.MP4_307.png
7 minutes ago by dillon@pavementmanagementgroup.com

DENNIS_LN_09.MP4_478.png
8 minutes ago by dillon@pavementmanagementgroup.com

MOONFLOWER_ST_01.MP4_258.png
11 minutes ago by dillon@pavementmanagementgroup.com

HOOVER_RD_04.MP4_553.png
12 minutes ago by dillon@pavementmanagementgroup.com

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DEMOREST_RD_09.MP4_1013.png
an hour ago by dillon@pavementmanagementgroup.com

BROOKHAM_RD_01.MP4_2129.png
an hour ago by dillon@pavementmanagementgroup.com

WOODGROVE_DR_04.MP4_300.png
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DEMOREST_RD_03.MP4_98.png
an hour ago by dillon@pavementmanagementgroup.com

MCDOWELL_RD_04.MP4_857.png
an hour ago by dillon@pavementmanagementgroup.com

SCIOTO_MEADOWS_BVD_01.MP4_3...
an hour ago by dillon@pavementmanagementgroup.com

1-12 of 1536

1 Alligator Cracking 4

2 Bleeding

3 Block Cracking

4 Bumps/Sags

5 Corrugation

6 Depression

7 Edge Cracking 1

8 Joint Reflection Cracking

9 Lane/Shoulder Drop

L&T 5

Patching

Polished Aggregate

Potholes

Rutting


Shoving

Slippage Cracking

Swell

Railroad Crossing

dillon@pavementmanagementgroup.com
35 minutes ago



Grove City

ASTM Inspection Project

Start labeling

Overview

Labels

Performance

Export

Settings

Progress

Overall Mine

2,865
Submitted

1,734
Remaining

157
Skipped

63%
Complete

Labels created

Weekly

Training data quality

Reviews

Review step disabled

2,963
Un-reviewed labels

0
Accepted labels

0
Declined labels

0
Ambiguous labels

Object count

Object	Count	Share
L&t	9,767	75%
Alligator Cracking	1,298	10%
Block Cracking	653	5%
Joint Reflection Cracking	546	4%
Edge Cracking	332	3%
Raveling	145	1%
Rutting	95	1%
Patching	94	1%
Bleeding	42	0%
Potholes	17	0%
Railroad Crossing	1	0%
Depression	1	0%
Slippage Cracking	1	0%

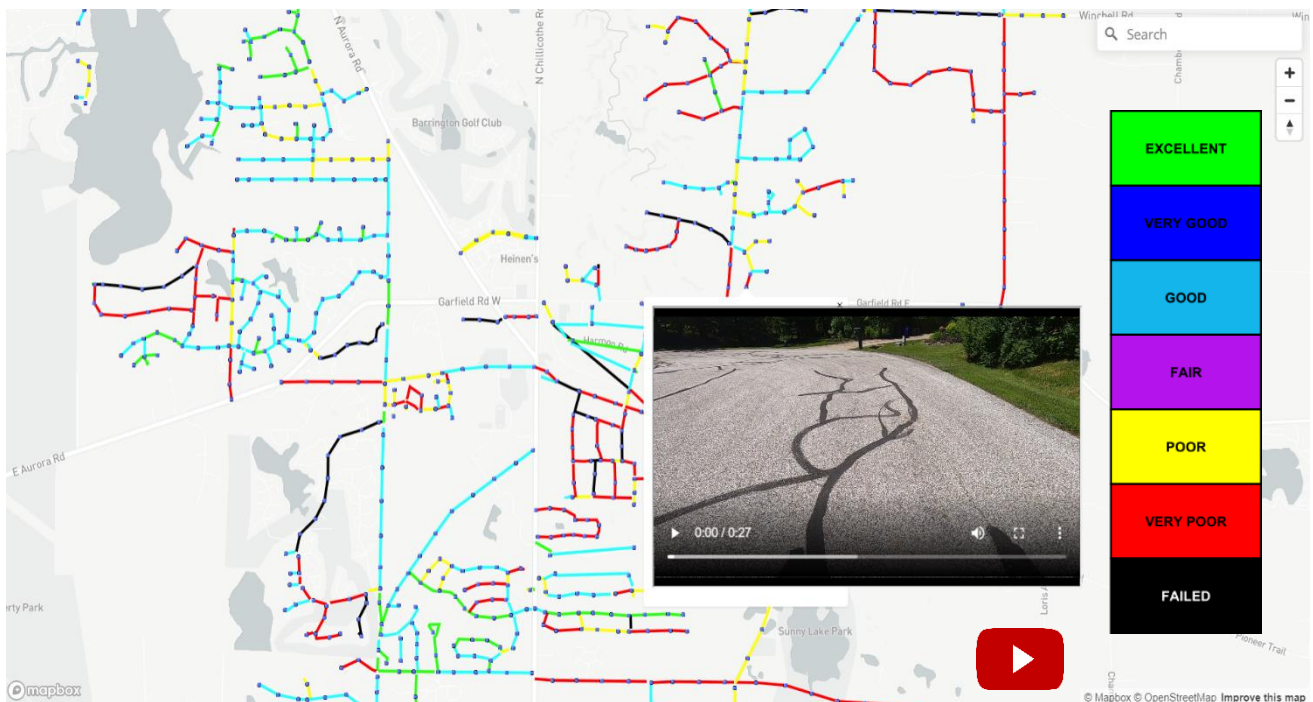
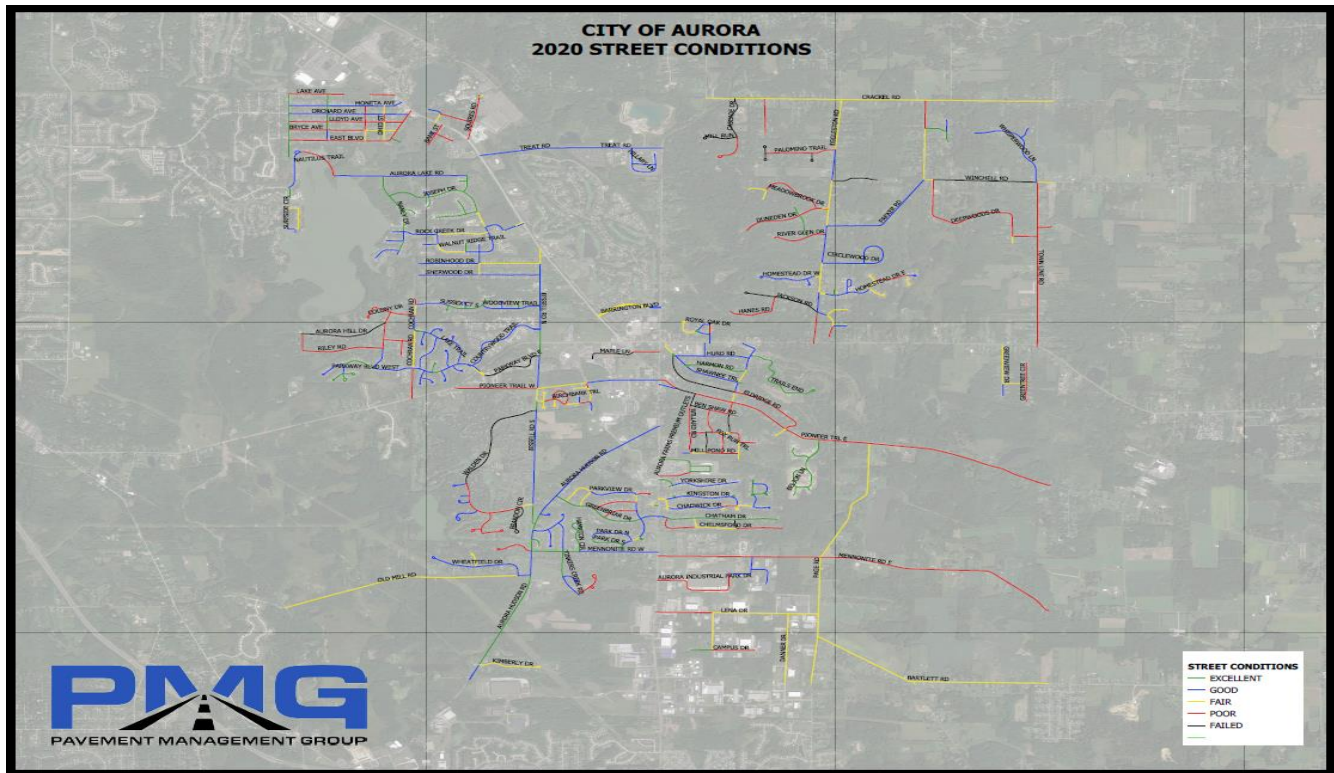
5. GIS Map Based Road Condition Review with HD Streaming

PMG uses PAVER's GIS Assignment tool along with your provided street centerline shapefile to create a variety of GIS inventory and condition-based maps regarding your pavement management data. GIS views are available within the PAVER software or can be easily exported from PAVER into ESRI ArcGIS compatible shapefiles.

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We also provide an html map driven file showing the current condition category of each street in your network and along with the streaming HD video captured by the PMG patrol team for each street section. Use this agile platform to review visual and PCI-based inventory data from any computer with a high-speed internet connection. All streaming video is securely stored, managed, and hosted by PMG.



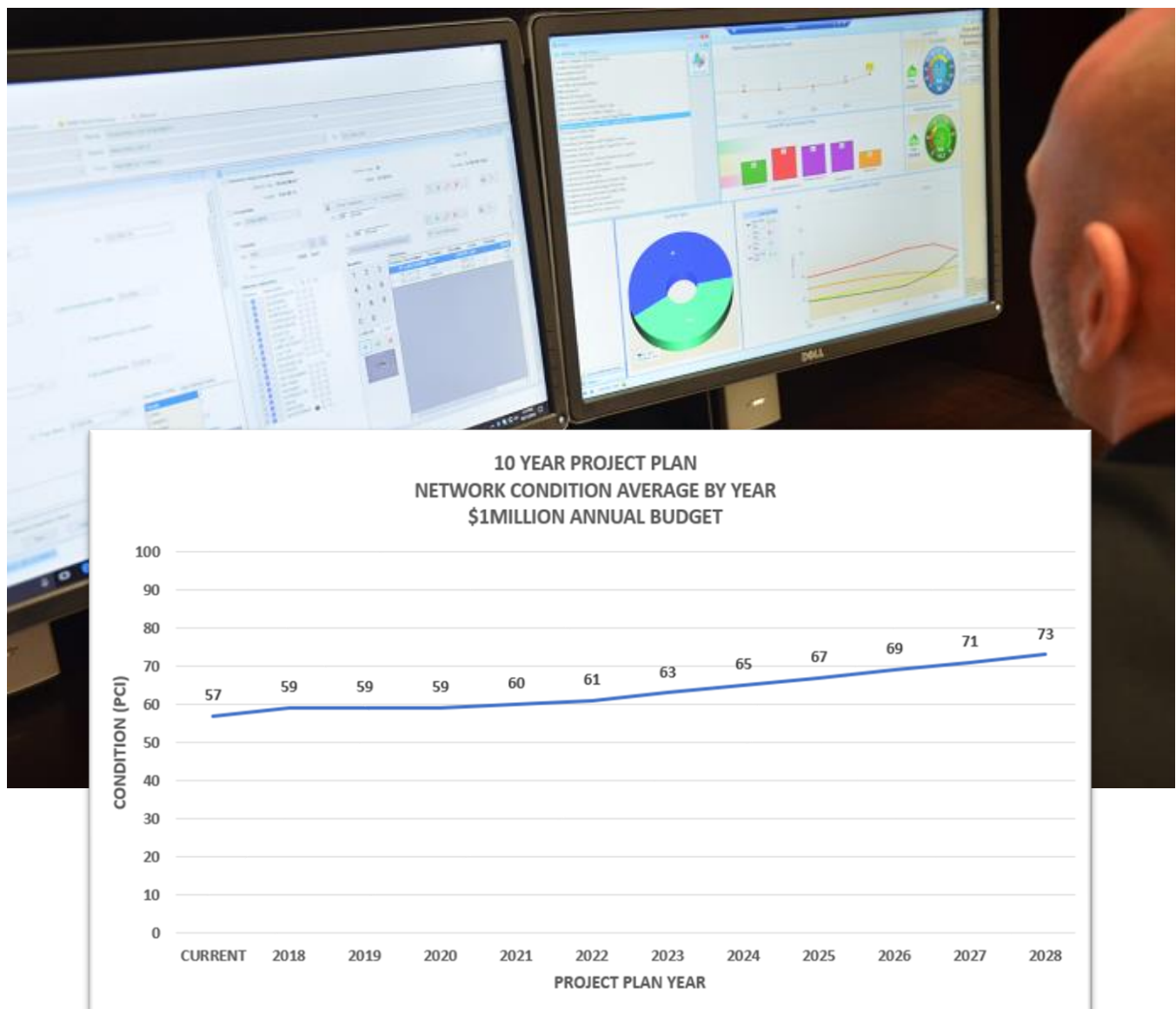
Client to provide street centerline and municipal boundary GIS shapefiles.

6. Budget Needs, Scenarios and Recommendations

PMG works with you to identify your existing maintenance tools and policies along with their associated costs. We use that information along with the data we collect from our inspection to make tailored maintenance recommendations for each section in your network. Then we provide a complete and accurate budget needs estimate for your entire project to simplify planning and decision making.

We use PAVER's decision tree and project planning tools to present various budget and target driven scenarios for your review. These scenarios give you an accurate picture of how various budgets or targets will affect maintenance progress year by year. Typical scenarios are:

- annual condition projection over the next 5 years based upon current maintenance budget;
- annual budget needs required to maintain current conditions over the next 5 years
- annual budget needs necessary to increase network condition by 5 points within the next 5 years



7. Final Project Report and On-Site Presentation

PMG will present a final project report on-site that includes:

- an executive summary;
- current condition status of the street network;
- published GIS map showing current street conditions by PMG assigned condition categories;
- a variety of charts/graphs and GIS views; and
- a separate Excel-based inventory and PCI report that lists all inventory items, current PCI condition, and PMG's recommended maintenance action for each street pavement section.



8. Data Management, Consulting & Support

PMG will provide up to forty hours of consulting and support through 12/31/2021. Service to start upon completion of the project with the final project close-out meeting, and includes (but is not limited to) inventory, work history, and network condition updates; budget and target driven scenarios and reporting; maintenance recommendations; GIS mapping of pavement condition; project planning; general consulting and support; presentation; etc. An annual support subscription is necessary to keep your work history, network condition, and PAVER license up to date between your biannual reinspection's, as well as to continue video streaming service to your Google Earth desktop.

Section 5. Project Timeline

PMG recommends a project start date of Late Winter/Early Spring 2021 and can complete the scope of work items within a 90-workday period.

Section 6. Future Project Consideration

PMG recommends continued consulting, management and support services each year, and video and re-inspection every other year to provide for a complete, up to date pavement management solution.

The following future projects recommendations with estimated costs have been provided below for your annual budgeting and long-term planning consideration:

Project Year 2022

TASK	FEE
1. Data Management, Consulting & Support	\$5,400.00
PROJECT TOTAL	\$5,400.00

Project Year 2023

TASK	FEE
1. Tailored Pavement Management System and Set Up	\$0.00
2. Network Inventory (INITIAL ONE TIME SETUP)	\$0.00
3. 1080P Full HD Video of Network Inventory	\$3,250.00
4. ASTM Standard (D6433) Condition (PCI) Assessment	\$5,525.00
5. GIS Assignment, Google Earth and Streaming Video	\$2,275.00
6. Budget Needs, Scenarios and Recommendations	\$1,080.00
7. Final Project Report and On-Site Presentation	\$2,160.00
8. Data Management, Consulting & Support	\$5,400.00
PROJECT TOTAL	\$19,690.00

Proposals for each project year and suggested scope will be sent out towards the end of each calendar year for inclusion into the following project year schedule.

Costs are subject to change and are based on current expected rates.

From all of us at PMG, thank you for the opportunity to provide our proposal for a complete pavement management system for the City of Powell, OH. We sincerely appreciate your time and consideration and look forward to your decision.

