



NETWORK OPERATOR PRESENTATION

Manhole condition assessment with AI

MACP™ condition coding and component measurement from the surface — building the condition data behind your inflow & infiltration targets

Presented by Intermountain Sales, Inc. · Utility Tools for Today

HARDWARE



AI CODING SOFTWARE

Pallon



The defects that matter most are the hardest to see

Corroded reinforcement



● Why it is critical

Corroding steel loses cross-section. The wall is losing the strength that holds the structure up.

● Why it gets missed

Sound and corroding rebar look alike. From the surface or under a single lamp, it is recorded as merely visible, or not at all.

Missing wall



● Why it is critical

Material is gone from the wall itself. Soil and groundwater can enter, and the structure is at risk of collapse.

● Why it gets missed

From a distance it looks like surface spalling, so it is recorded as a minor defect and the structure drops down the priority list.

With RV-MAX 360 + Pallon, finding them does not depend on where someone happened to look: **the camera records every inch of the wall in 8MP 360° video, and Pallon's AI reviews the full recording for these defects.**

Price and performance compared

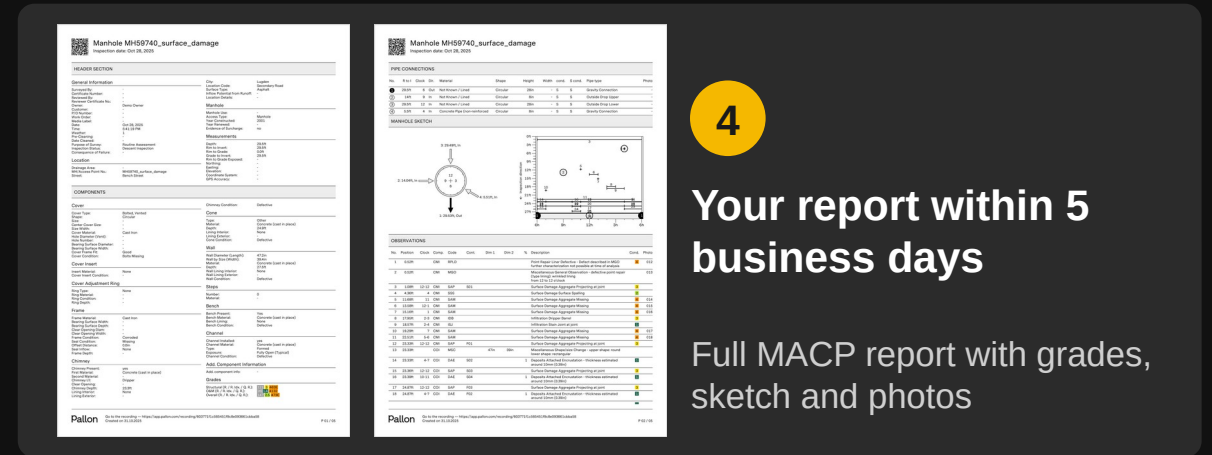
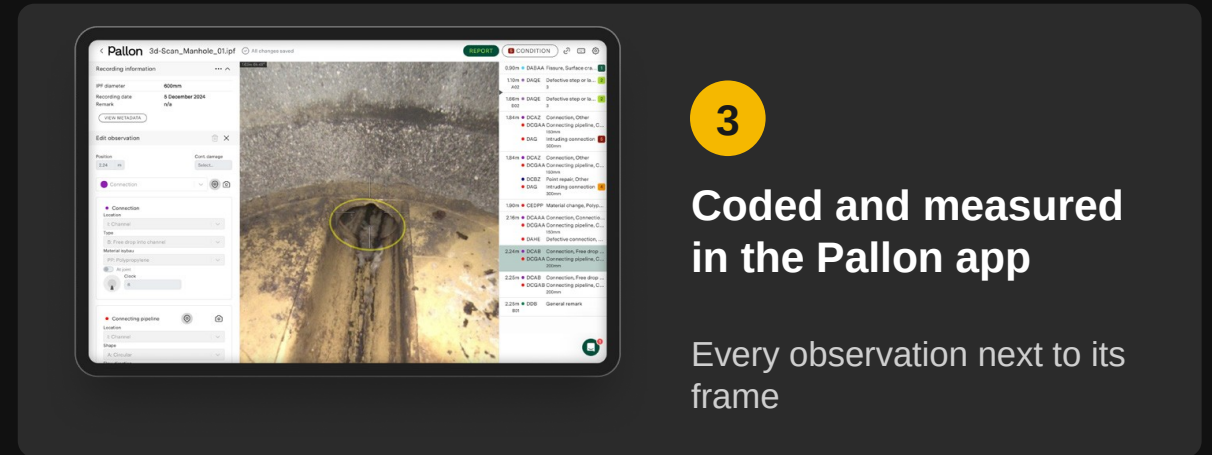
Criterion	Manned entry	Zoom pole camera	3D optical scanner	RV-MAX 360 + Pallon
No confined-space entry	✗ Entry required	✓ Yes	✓ Yes	✓ Yes
Full 360° record to revisit	✗ No	✗ Operator's view only	✓ Yes	✓ 8MP 360° video
Crew on site	2–3 trained staff	1–2	1–2	✓ 1 operator
Time per manhole on site	30–60 min	Operator-dependent	~2–5 min	✓ 1–3 min
Level 2 MACP measurements	Tape, by hand	Limited	From point cloud	✓ Pre-coded and measured
Deployment	Crew, tripod, gas monitor	Portable pole	Probe, winch, software	✓ 3 kg, 12-h battery
Hardware investment	Entry gear, gas monitor	Low	>\$100,000 system	✓ \$22,500–\$24,795 kit
Cost per manhole	✗ \$140 or more	✗ Crew + manual coding	✗ Crew + manual coding	✓ ~\$46–60 all-in

The complete record of a scanner, at the speed and simplicity of a pole camera — and with Pallon, coded and measured without a coding specialist.

Sources: RV-MAX 360 — rinnovision.com and RinnoVision quote (April 2026); 3D scanner scan times — manufacturer material (IBAK, [Envirosight](#)). Other times and system prices: industry estimates. Costs per manhole: economics section (500–5,000 manholes a year).

THE SOLUTION AT A GLANCE

From the manhole to your report



Images: RinnoVision, Pallon.

Four steps, one simple field routine



1

Capture with RV-MAX 360

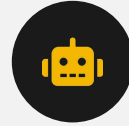
One operator, working from the surface. No confined-space entry. The field routine is shown below.



2

Automatic transfer

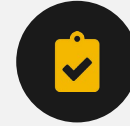
Video syncs from the RV-MAX to RinnoCloud and on to Pallon by itself. No manual upload, no moving files.



3

AI coding

Pallon codes every observation to MACP v7.0.9 and measures the structure from its own 3D reconstruction. No point cloud to buy.



4

Review and export

Report within 5 business days. Your reviewer checks each observation against its image, signs off and exports, for example to WinCan.

IN THE FIELD

1

Align the QR code with the outgoing pipe

2

Pick the lighting mode for the manhole size

3

Enter the header data

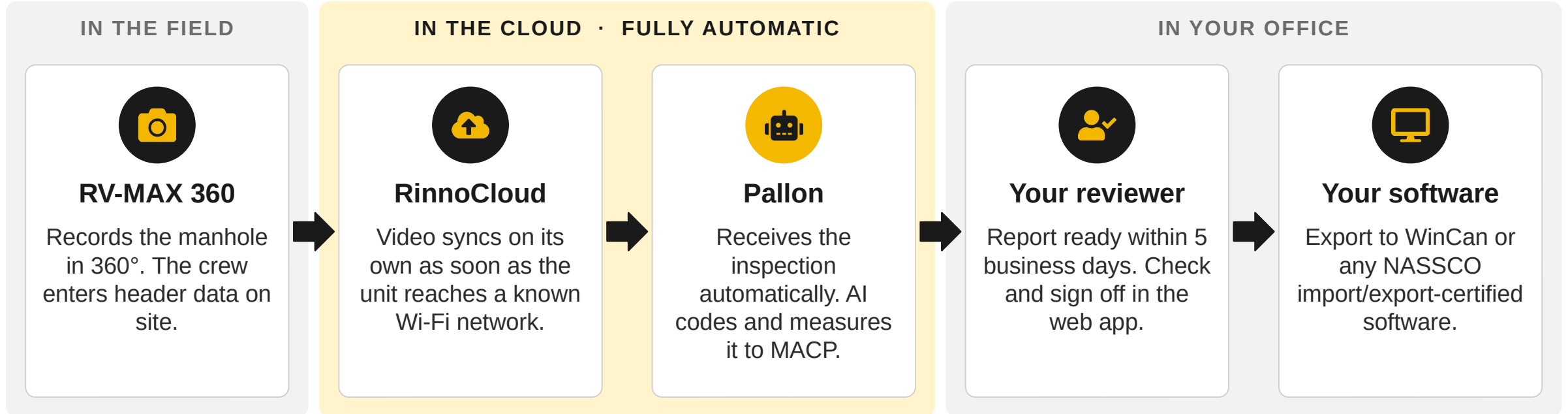
4

Start recording

5

Lower at under 10 ft/min

From the manhole to your software, automatically



No manual upload, no files on USB sticks, no re-keying: the inspection travels from the manhole to your inspection software on its own.

From your inspection software, condition data flows on into your asset management system as it does today.

WHAT YOU GET

A complete MACP report for every manhole

Manhole MH59740_surface_damage
Inspection date: Oct 28, 2025

HEADER SECTION

General Information

City: Lugden
Location Code: Secondary Road
Surface Type: Asphalt
Inflow Potential from Runoff: -
Location Details: -

Owner: Demo Owner
Manhole
Manhole Use: -
Access Type: Manhole
Year Constructed: 2001
Year Renewed: -
Evidence of Surcharge: no

Measurements
Date Cleaned: -
Purpose of Survey: Routine Assessment
Inspection Status: Descent Inspection
Consequence of Failure: -

Location
Drainage Area: -
MH/Access Point No.: MH59740_surface_damage
Street: Bench Street

COMPONENTS

Cover
Cover Type: Bolted, Vented
Shape: Circular
Size: -
Center Cover Size: -
Cover Material: Cast Iron
Hole Diameter (Vent): -
Hole Number: -
Bearing Surface Diameter: -
Bearing Surface Width: -
Cover Frame Fit: Good
Cover Condition: Bolts Missing

Chimney Condition: Defective

Cone
Type: Other
Material: Concrete (cast in place)
Depth: 24.9ft
Lining Interior: None
Cone Condition: Defective

Wall
Wall Diameter (Length): 47.2in
Wall by Size (Width): 39.4in
Material: Concrete (cast in place)
Depth: 27.5ft
Wall Lining Interior: None
Wall Lining Exterior: Defective
Wall Condition: Defective

Steps
Number: 0
Material: -

Bench
Bench Present: Yes
Bench Material: Concrete (cast in place)
Bench Lining: None
Bench Condition: Defective

Channel
Channel Installed: yes
Channel Material: Concrete (cast in place)
Type: Formed
Exposure: Fully Open (Typical)
Channel Condition: Defective

Add Component Information
Add component info: -

Grades
Structural (R / R Ldx / Q R3)
OSM (R / R Ldx / Q R3)
Overall (R / R Ldx / Q R3)

Chimney
Chimney Present: yes
First Material: Concrete (cast in place)
Second Material: Driveway
Chimney (L): -
Clear Opening: 23.3in
Chimney Depth: -
Lining Interior: None
Lining Exterior: -

Pallion Go to the recording -> <https://app.pallion.com/recording/6037711c5854519bde093681cbb48>
Created on 31.10.2025 P 01 / 08

Manhole MH59740_surface_damage
Inspection date: Oct 28, 2025

PIPE CONNECTIONS

No.	R to I	Clock	Dir.	Material	Shape	Height	Width	cond.	S cond.	Pipe type	Photo
1	29.5ft	6	Out	Not Known / Lined	Circular	28in	-	S	S	Gravity Connection	-
2	14ft	9	In	Not Known / Lined	Circular	8in	-	S	S	Outside Drop Upper	-
3	29.5ft	12	In	Not Known / Lined	Circular	28in	-	S	S	Outside Drop Lower	-
4	5.6ft	4	In	Concrete Pipe (non-reinforced)	Circular	8in	-	S	S	Gravity Connection	-

MANHOLE SKETCH

3: 29.49ft, In
2: 14.04ft, In
1: 29.53ft, Out
4: 5.51ft, In

OBSERVATIONS

No.	Position	Clock	Comp.	Code	Cont.	Dim 1	Dim 2	%	Description	Cond.	Photo
1	0.52ft	CMR	RPLD						Point Repair Liner Defective - Defect described in MGO further characterization not possible at time of analysis	012	
2	0.52ft	CMR	MGO						Miscellaneous General Observation - defective point repair (Type Inlay) - voided lining from 12 to 12 o'clock	013	
3	1.09ft	12-12	CMR	SAP	501				Surface Damage Aggregate Projecting at joint	014	
4	4.36ft	4	CMR	SSS					Surface Damage Surface Spalling	015	
5	11.68ft	11	CMR	SAM					Surface Damage Aggregate Missing	016	
6	11.68ft	12-1	CMR	SAM					Surface Damage Aggregate Missing	017	
7	15.10ft	1	CMR	SAM					Surface Damage Aggregate Missing	018	
8	17.59ft	2-3	CMR	IDB					Infiltration Dropper Barrel	019	
9	18.57ft	2-4	CMR	ISJ					Infiltration Stain Joint at joint	020	
10	19.29ft	7	CMR	SAM					Surface Damage Aggregate Missing	021	
11	22.51ft	5-6	CMR	SAM					Surface Damage Aggregate Missing	022	
12	23.33ft	12-12	CMR	SAP	F01				Surface Damage Aggregate Projecting at joint	023	
13	23.33ft	COI	MSC			47in	38in		Miscellaneous Shape/size Change - upper shape: round lower shape: rectangular	024	
14	23.33ft	4-7	COI	DAE	502				1 Deposits Attached Encrustation - thickness estimated around 10mm (0.39in)	025	
15	23.36ft	12-12	COI	SAP	503				Surface Damage Aggregate Projecting at joint	026	
16	23.39ft	10-11	COI	DAE	504				1 Deposits Attached Encrustation - thickness estimated around 10mm (0.39in)	027	
17	24.67ft	12-12	COI	SAP	F03				Surface Damage Aggregate Projecting at joint	028	
18	24.67ft	4-7	COI	DAE	F02				1 Deposits Attached Encrustation - thickness estimated around 10mm (0.39in)	029	

Pallion Go to the recording -> <https://app.pallion.com/recording/6037711c5854519bde093681cbb48>
Created on 31.10.2025 P 02 / 08



Header and components

Cover, frame, chimney, cone, wall, bench, channel



Pipe connections and sketch

Depth, clock position, size and material



Every observation coded

Code, position, clock and grade, with a photo



Structural, O&M and overall grades

Ratings, index and quick rating, calculated



Link to the full recording

Check any code against its 360° frame

Thousands of manholes analyzed every week

Hundreds of engineers use Pallion every day

What it costs: hardware and software

RINNOVISION RV-MAX 360

One-time hardware purchase

Kit with 30-ft extendable pole	\$22,500
--------------------------------	-----------------

Kit with 165-ft reel tripod	\$23,610
-----------------------------	-----------------

Kit with pole and tripod (recommended)	\$24,795
---	-----------------

Includes all accessories, tablet, rugged transport case, training and RinnoCloud access. Plus shipping.

PALLON AI CODING

Pay per coded manhole

Level 2 MACP coding, per manhole	\$29.95
----------------------------------	----------------

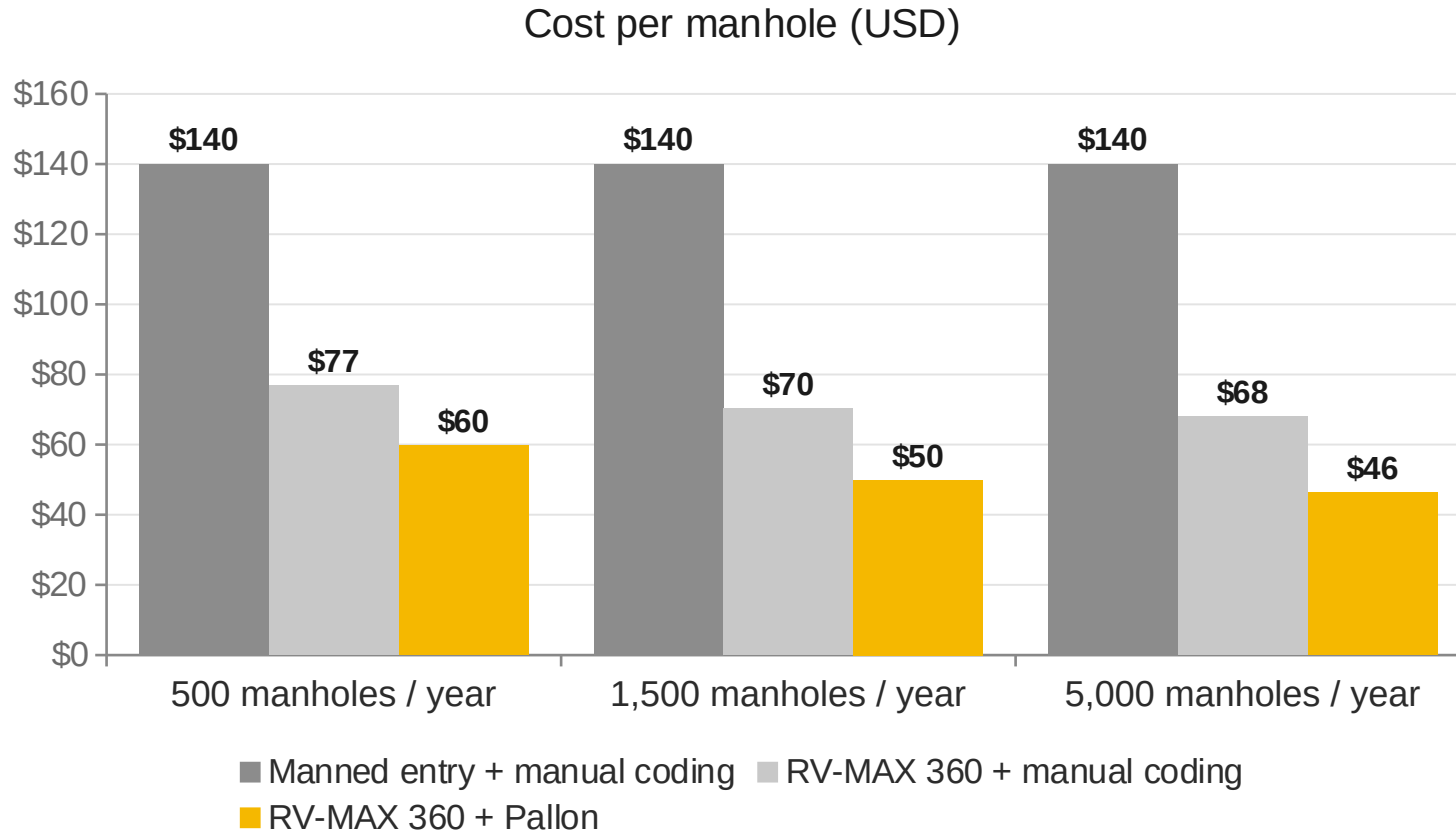
At 10,000 manholes per year	\$19.95
-----------------------------	----------------

Annual platform fee	\$2,450
---------------------	----------------

Every manhole comes back coded and measured within 5 business days, ready for your reviewer to sign off. No point cloud to buy.

All prices in USD, excluding shipping and taxes. RinnoVision list prices as quoted in April 2026; Pallon list pricing. Order both directly from Intermountain Sales; confirm current pricing in your formal quote.

Cost per manhole, all-in, by annual volume



SAVING PER YEAR VS. MANNED

500 / yr	\$40,116
1,500 / yr	\$135,166
5,000 / yr	\$467,841

HARDWARE PAYBACK

500 / yr	~7 months
1,500 / yr	~2 months
5,000 / yr	~3 weeks

Illustrative model: 45 min manual coding, 5 min review in every workflow, RV-MAX kit written off over 5 years. Full breakdown on request.

NEXT STEP

See it on your own manholes

Intermountain demos the RV-MAX 360 on your manholes. Pallon codes up to 5 of them free of charge, and we walk through the results with your team.

Intermountain Sales, Inc.

3792 South Lipan Street, Englewood, CO 80110

(303) 762-1070 · 1-800-373-3212

www.intermtnsales.com



HARDWARE



AI CODING SOFTWARE

Pallon