

WORLDNERVE

Infrastructure Corridor Ground Movement Screening

A real-data sample for infrastructure owners, operators, engineers, and maintenance teams.

HOUSTON REFERENCE CORRIDOR

74.9 km | 30 segments | 165 observation dates

THE OPERATIONS QUESTION

Which sections deserve engineering attention or field inspection first?

Screen the whole alignment consistently, then inspect where the evidence is strongest.

Prospect sample

Real measurements. Illustrative alignment. Not an actual infrastructure asset.

Network inspection summary

The corridor is divided into repeatable chainage segments. Each section receives the same movement screen, measurement coverage field, review category, and recommended action. The illustrative alignment was selected to demonstrate the full deliverable and is not representative of any real network.

74.9	30	1	5	57%
CORRIDOR KM	SEGMENTS	PRIORITY INSPECTION	ENGINEERING REVIEW	MEASUREMENT COVERAGE

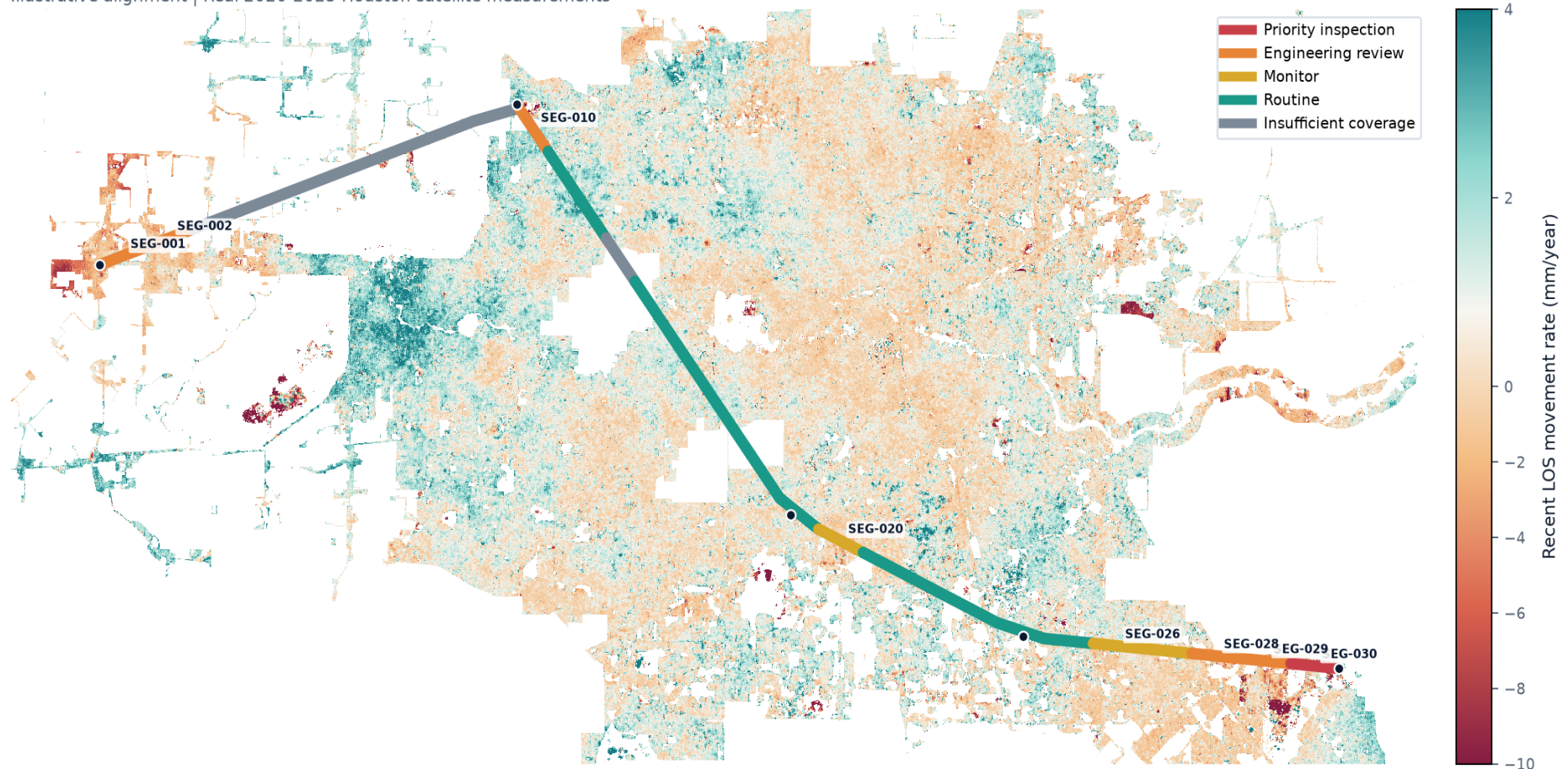
Operational priority	Measured evidence	Recommended response
SEG-030	Chainage 72.5-74.9 km; screen rate -8.9 mm/year LOS; coverage 51%.	Prioritize engineering review and field inspection.
Adjacent review	Neighbouring segments remain visible in the chainage profile, allowing the operator to see whether the flag is isolated or part of a longer moving section.	Review structures, joints, approaches, drainage, ground conditions, and existing instrumentation across the flagged chainage.
Monitoring baseline	The 2020-2025 record provides a dated baseline for repeat screening.	Refresh on an agreed cycle and compare category, rate, and evidence coverage by segment.

Screen the whole corridor. Inspect the exceptions.

The corridor view connects each colored section to its position in the wider measured movement pattern. The highest-priority sections are labeled for direct handoff to engineering and maintenance teams.

Corridor-wide screening with per-segment actions

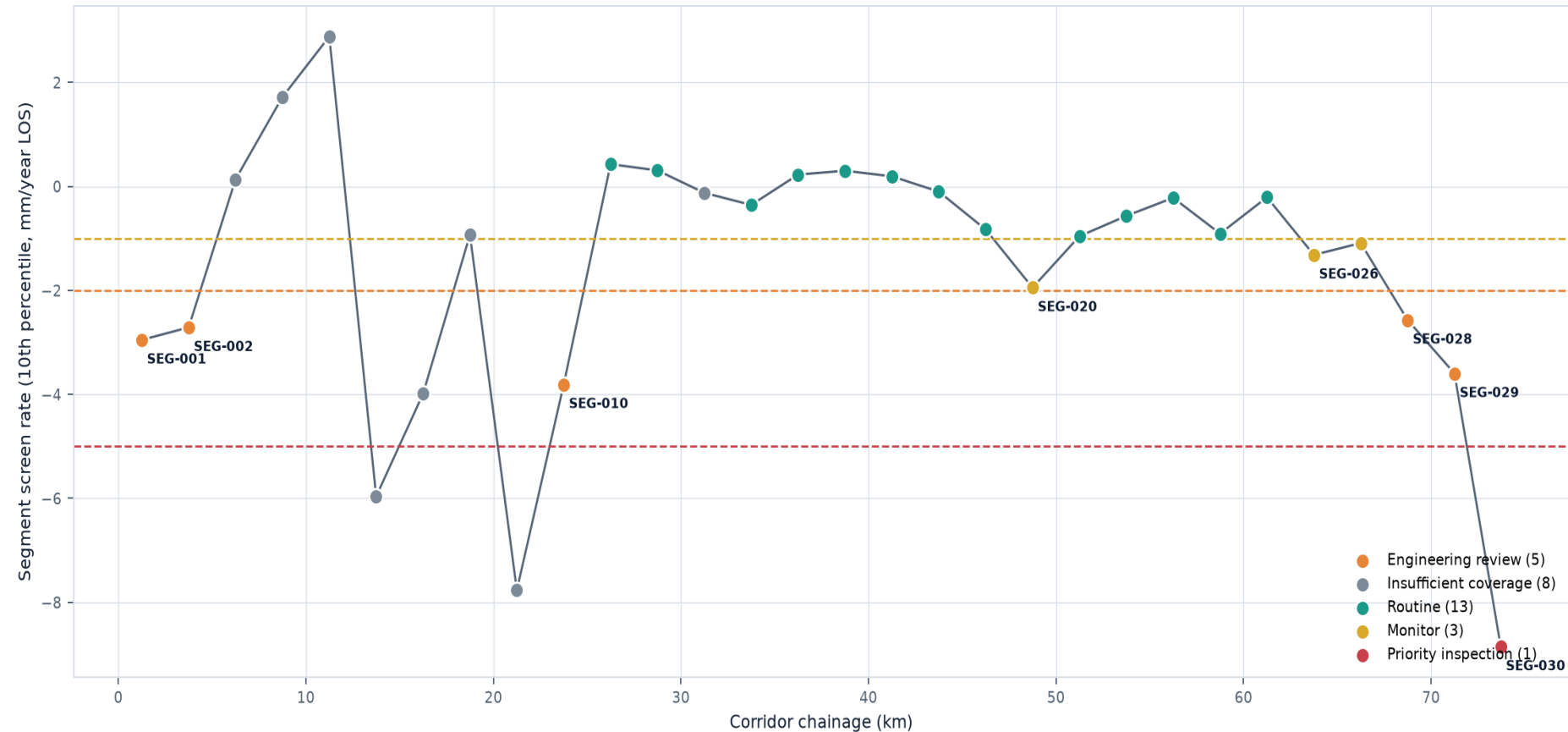
Illustrative alignment | Real 2020-2025 Houston satellite measurements



Chainage profile makes section-to-section change visible

The profile gives operators a single linear view of the corridor and shows how flagged sections relate to adjacent chainage.

Movement screening profile along the alignment



Segment action register

The register is designed for maintenance, inspection, and GIS workflows. Client segment IDs, structures, asset class, criticality, and work-order fields can be retained.

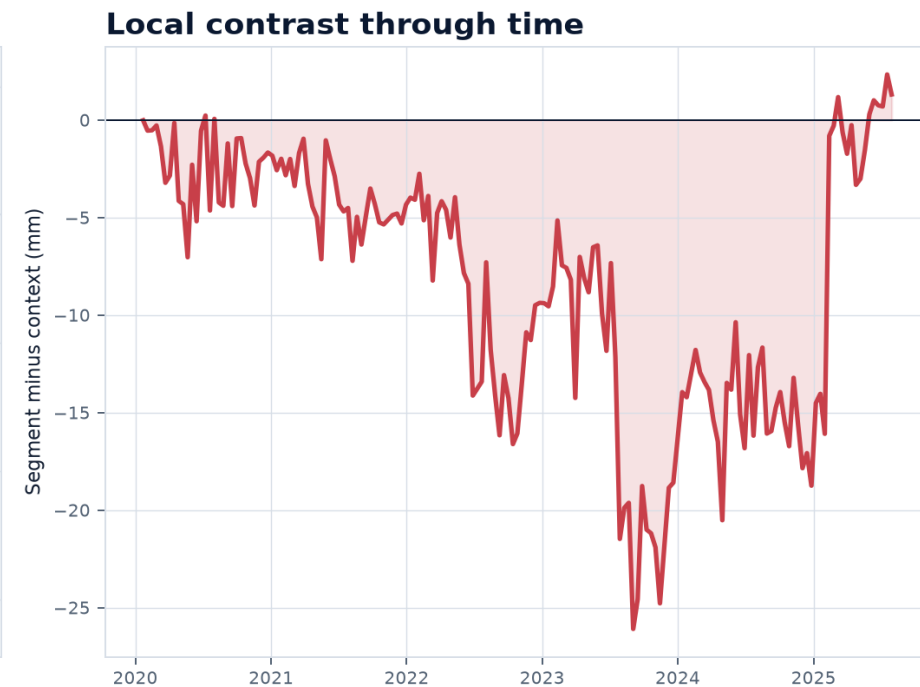
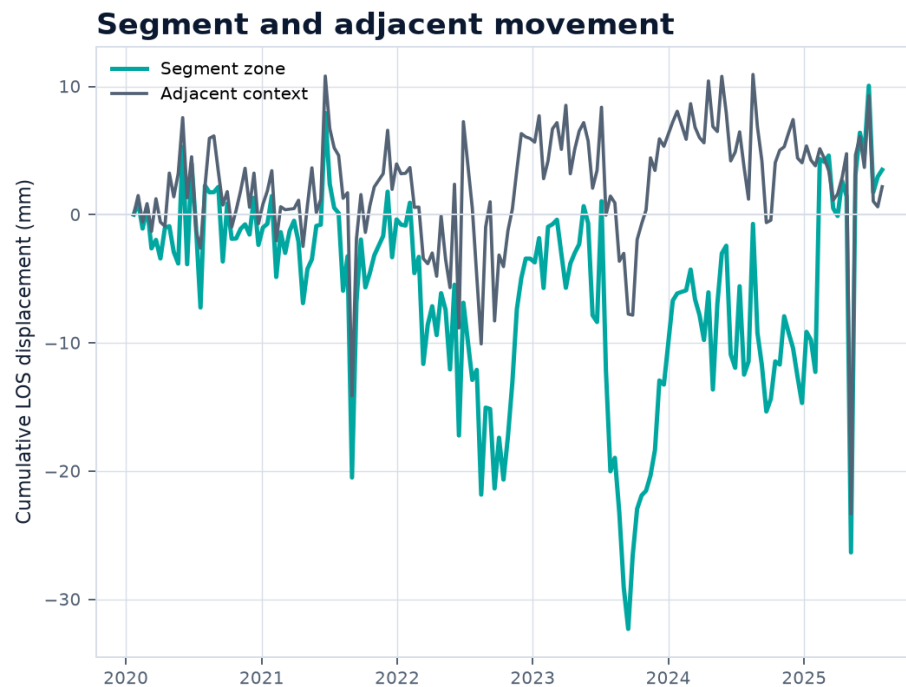
Rank	Segment	Chainage	Screen rate	Coverage	Review category	Recommended action
1	SEG-030	72.5-74.9 km	-8.9 mm/yr	51%	Priority inspection	Prioritize engineering review and field inspection.
2	SEG-010	22.5-25.0 km	-3.8 mm/yr	71%	Engineering review	Review history and adjacent segments; inspect if operationally material.
3	SEG-029	70.0-72.5 km	-3.6 mm/yr	48%	Engineering review	Review history and adjacent segments; inspect if operationally material.
4	SEG-001	0.0-2.5 km	-3.0 mm/yr	69%	Engineering review	Review history and adjacent segments; inspect if operationally material.
5	SEG-002	2.5-5.0 km	-2.7 mm/yr	39%	Engineering review	Review history and adjacent segments; inspect if operationally material.
6	SEG-028	67.5-70.0 km	-2.6 mm/yr	46%	Engineering review	Review history and adjacent segments; inspect if operationally material.
7	SEG-020	47.5-50.0 km	-1.9 mm/yr	92%	Monitor	Retain baseline and refresh on the agreed monitoring cycle.
8	SEG-026	62.5-65.0 km	-1.3 mm/yr	94%	Monitor	Retain baseline and refresh on the agreed monitoring cycle.
9	SEG-027	65.0-67.5 km	-1.1 mm/yr	84%	Monitor	Retain baseline and refresh on the agreed monitoring cycle.
10	SEG-021	50.0-52.5 km	-1.0 mm/yr	89%	Routine	No movement-led inspection trigger from this screen.
11	SEG-024	57.5-60.0 km	-0.9 mm/yr	72%	Routine	No movement-led inspection trigger from this screen.
12	SEG-019	45.0-47.5 km	-0.8 mm/yr	95%	Routine	No movement-led inspection trigger from this screen.
13	SEG-022	52.5-55.0 km	-0.6 mm/yr	76%	Routine	No movement-led inspection trigger from this screen.
14	SEG-014	32.5-35.0 km	-0.4 mm/yr	33%	Routine	No movement-led inspection trigger from this screen.
15	SEG-023	55.0-57.5 km	-0.2 mm/yr	52%	Routine	No movement-led inspection trigger from this screen.
16	SEG-025	60.0-62.5 km	-0.2 mm/yr	89%	Routine	No movement-led inspection trigger from this screen.
17	SEG-018	42.5-45.0 km	-0.1 mm/yr	72%	Routine	No movement-led inspection trigger from this screen.
18	SEG-017	40.0-42.5 km	0.2 mm/yr	33%	Routine	No movement-led inspection trigger from this screen.
19	SEG-015	35.0-37.5 km	0.2 mm/yr	98%	Routine	No movement-led inspection trigger from this screen.
20	SEG-016	37.5-40.0 km	0.3 mm/yr	100%	Routine	No movement-led inspection trigger from this screen.
21	SEG-012	27.5-30.0 km	0.3 mm/yr	100%	Routine	No movement-led inspection trigger from this screen.
22	SEG-011	25.0-27.5 km	0.4 mm/yr	94%	Routine	No movement-led inspection trigger from this screen.
23	SEG-009	20.0-22.5 km	-7.8 mm/yr	24%	Insufficient coverage	Use survey, instrumentation, alternate imagery, or field assessment.
24	SEG-006	12.5-15.0 km	-6.0 mm/yr	9%	Insufficient coverage	Use survey, instrumentation, alternate imagery, or field assessment.
25	SEG-007	15.0-17.5 km	-4.0 mm/yr	19%	Insufficient coverage	Use survey, instrumentation, alternate imagery, or field assessment.
26	SEG-008	17.5-20.0 km	-0.9 mm/yr	12%	Insufficient coverage	Use survey, instrumentation, alternate imagery, or field assessment.
27	SEG-013	30.0-32.5 km	-0.1 mm/yr	22%	Insufficient coverage	Use survey, instrumentation, alternate imagery, or field assessment.
28	SEG-003	5.0-7.5 km	0.1 mm/yr	9%	Insufficient coverage	Use survey, instrumentation, alternate imagery, or field assessment.
29	SEG-004	7.5-10.0 km	1.7 mm/yr	7%	Insufficient coverage	Use survey, instrumentation, alternate imagery, or field assessment.
30	SEG-005	10.0-12.5 km	2.9 mm/yr	1%	Insufficient coverage	Use survey, instrumentation, alternate imagery, or field assessment.

The highest-priority segment carries its history

SEG-030 is not labeled as failed or damaged. It is prioritized because its screening signal is strong enough to justify engineering attention relative to the rest of the corridor.

History attached to the highest-priority segment

SEG-030 | Chainage 72.5-74.9 km | Screen rate -8.9 mm/year LOS



Inspection brief

Review the flagged chainage with existing survey, maintenance, drainage, structural, and geotechnical information. Use field inspection or instrumentation to determine condition, cause, urgency, and any operational response.

Built for repeatable infrastructure monitoring

1. DEFINE	2. SCREEN	3. RANK	4. ACT AND MONITOR
Operator provides Alignment GIS Segment IDs Buffer widths Priority structures and criticality	WorldNerve measures Historical movement Per-segment rates Adjacent context Coverage and confidence	Delivered queue Flagged sections Chainage profile Time histories GIS and CSV outputs	Operator decides Inspection priority Engineering review Instrumentation Refresh schedule

Delivered to the operator Per-segment action register Corridor movement map Chainage screening profile Flagged-section time histories Coverage and confidence fields GIS-compatible outputs and PDF summary	Evidence boundary The screen prioritizes engineering attention. It does not determine structural condition, cause, safety, remaining life, operational limits, or maintenance need. Monitoring use Repeat the same segment framework as new observations arrive so changes in rate, category, and spatial extent can be reviewed consistently.
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START WITH ONE CORRIDOR OR FACILITY

Screen the whole network. Inspect where it moves.

A corridor pilot establishes measurement density, data quality, and operational usefulness before wider deployment.

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What to send

An alignment or facility footprint, preferred segment length and buffer, priority structures, available survey or instrumentation data, and the maintenance decision the screen should support.

What the pilot answers

Where is useful measurement coverage available? Which sections deserve review first? Is a flag isolated or continuous? Can the result support repeat monitoring?

Applicable assets

Roads | rail | bridges and approaches | pipelines | utilities | ports | airports | dams | industrial sites | construction corridors

Data basis: OPERA Surface Displacement (DISP-S1), ascending track 34 / frame 8882; 165 observations from January 2020 to July 2025. Segment screening uses short-wavelength LOS measurements at approximately 30 m native spacing and local spatial aggregation. LOS combines vertical and horizontal motion; negative values are movement away from the satellite, not direct vertical-settlement estimates. The illustrative alignment does not describe an actual road, railway, pipeline, utility, or infrastructure asset.