

TECHNICAL REFERENCE SCREENING

Houston Public-Library Reference Portfolio

Historical Ground Movement Screening and Ranked Review

Public-library reference portfolio | NASA OPERA DISP-S1 | 22 January 2020 - 30 July 2025

30	165	100%	0
real public facilities screened	satellite displacement products	assets with sufficient evidence	movement-led referrals

INTENDED FOR Municipal asset managers Public-entity insurers Risk engineers and facilities teams	DECISION SUPPORTED Which sites in this schedule justify movement-led inspection or referral, and which can remain on routine review?
--	--

Portfolio conclusion. None of the 30 screened locations meets the defined movement-led referral rule. All locations have sufficient radar evidence. Retain routine annual refresh; do not infer structural safety from this result.

Prepared by: WorldNerve - Dr. Zeeshan Afzal, PhD
Report reference: WN-HOU-PORT-2026-01
Issue date: 25 July 2026

This example uses real public locations and real satellite measurements. It is not a client engagement and contains no private policy or property data.

1. Decision summary

The purpose of a portfolio screen is not to describe every radar layer. It is to identify which locations deserve scarce inspection, underwriting, or engineering time. Each of the 30 real Houston Public Library locations was assessed consistently against the same 2020-2025 movement archive and its surrounding 300-900 m context.



1.1 What the buyer should do

- **No movement-led inspection escalation is indicated for this schedule.** No site shows a persistent negative site-minus-neighborhood trend at the referral threshold.
- **Keep the ranked list.** HPL-003, HPL-022, and HPL-021 have the most negative relative slopes, but the magnitudes are small and the trends weakly consistent; they remain Routine.
- **Refresh at renewal or annually.** The current result becomes a documented baseline against which later behavior can be compared.
- **Do not treat Routine as a safety certificate.** It means only that the defined satellite movement criteria did not trigger referral in this period.

1.2 Highest-ranked locations

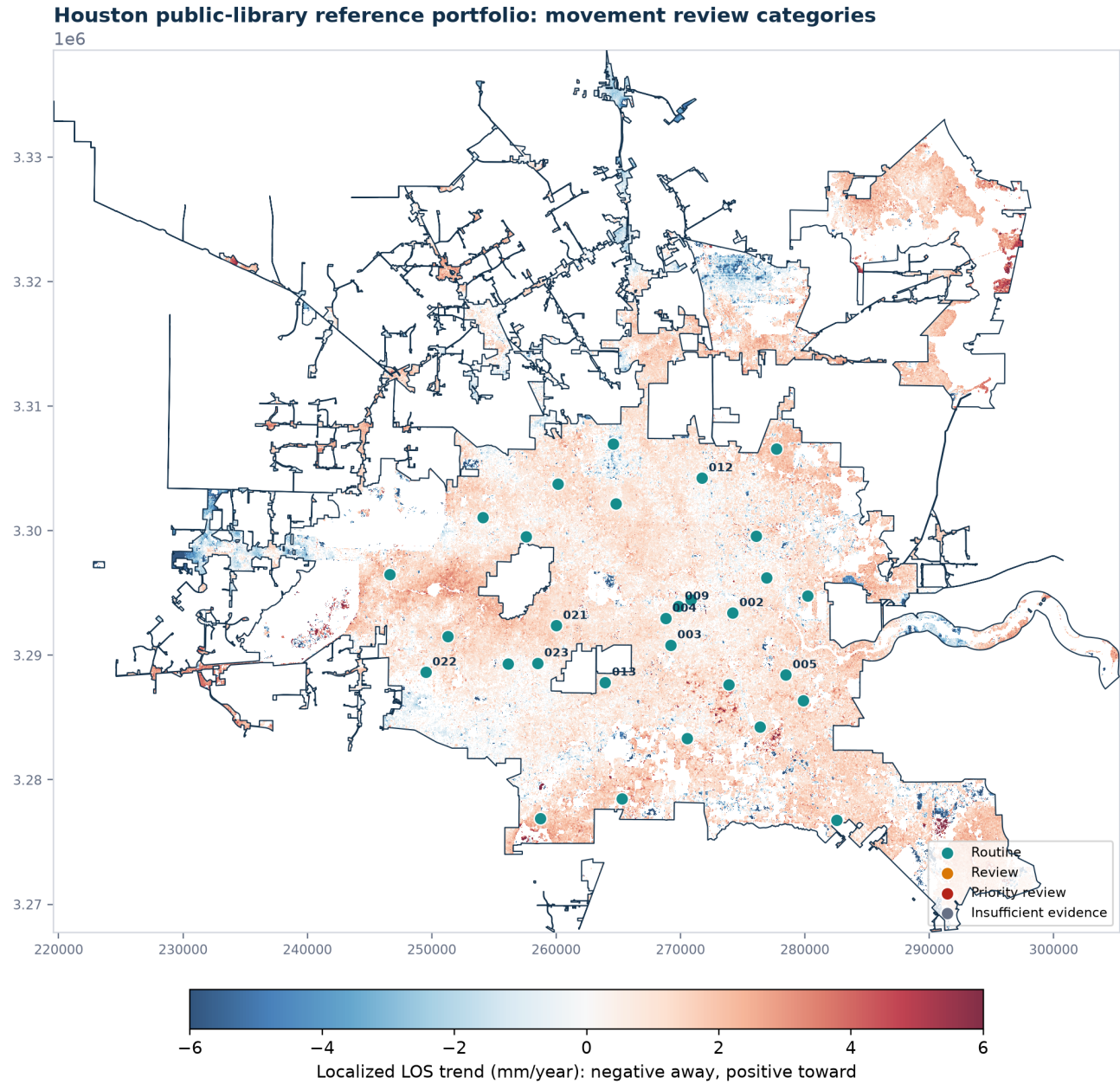
Rank	Asset	Site-relative rate	R2	Valid pixels	Action
1	HPL-003 - Clayton Library Center for Genealogical Research	-0.48 mm/yr	0.18	50	Routine refresh
2	HPL-022 - Alief-Henington Regional Library	-0.45 mm/yr	0.15	25	Routine refresh
3	HPL-021 - Jungman Branch	-0.37 mm/yr	0.16	50	Routine refresh
4	HPL-009 - African American History Research Center	-0.27 mm/yr	0.11	49	Routine refresh
5	HPL-002 - Flores Branch	-0.25 mm/yr	0.06	52	Routine refresh
6	HPL-004 - Freed-Montrose Branch	-0.12 mm/yr	0.01	51	Routine refresh
7	HPL-005 - Melcher Branch	-0.08 mm/yr	0.01	51	Routine refresh
8	HPL-013 - McGovern-Stella Link Branch	-0.02 mm/yr	0.00	50	Routine refresh

1.3 Why this has business value

A no-referral result can prevent blanket site visits across a schedule while preserving a defensible evidence trail. The ranked output allows risk professionals to combine movement history with claims, condition surveys, flood exposure, construction attributes, or planned capital works rather than inspecting every asset equally.

2. Portfolio view

The map places every asset on the same localized LOS trend field. This is the regional comparison view an insurer, asset manager, or risk engineer uses to see whether a site sits inside a movement concentration or behaves differently from nearby locations.



Real public facility locations; address-centered 120 m site zones; categories prioritize follow-up and do not diagnose damage.

Figure 1. Thirty real public facilities screened on the 2020-2025 localized LOS trend field. All locations are Routine under the explicit referral rule.

3. Ranked review list

Ranking is based on the trend in localized LOS at the 120 m site vicinity minus the surrounding 300-900 m context. More negative values receive earlier review, but a rank does not by itself constitute a referral.

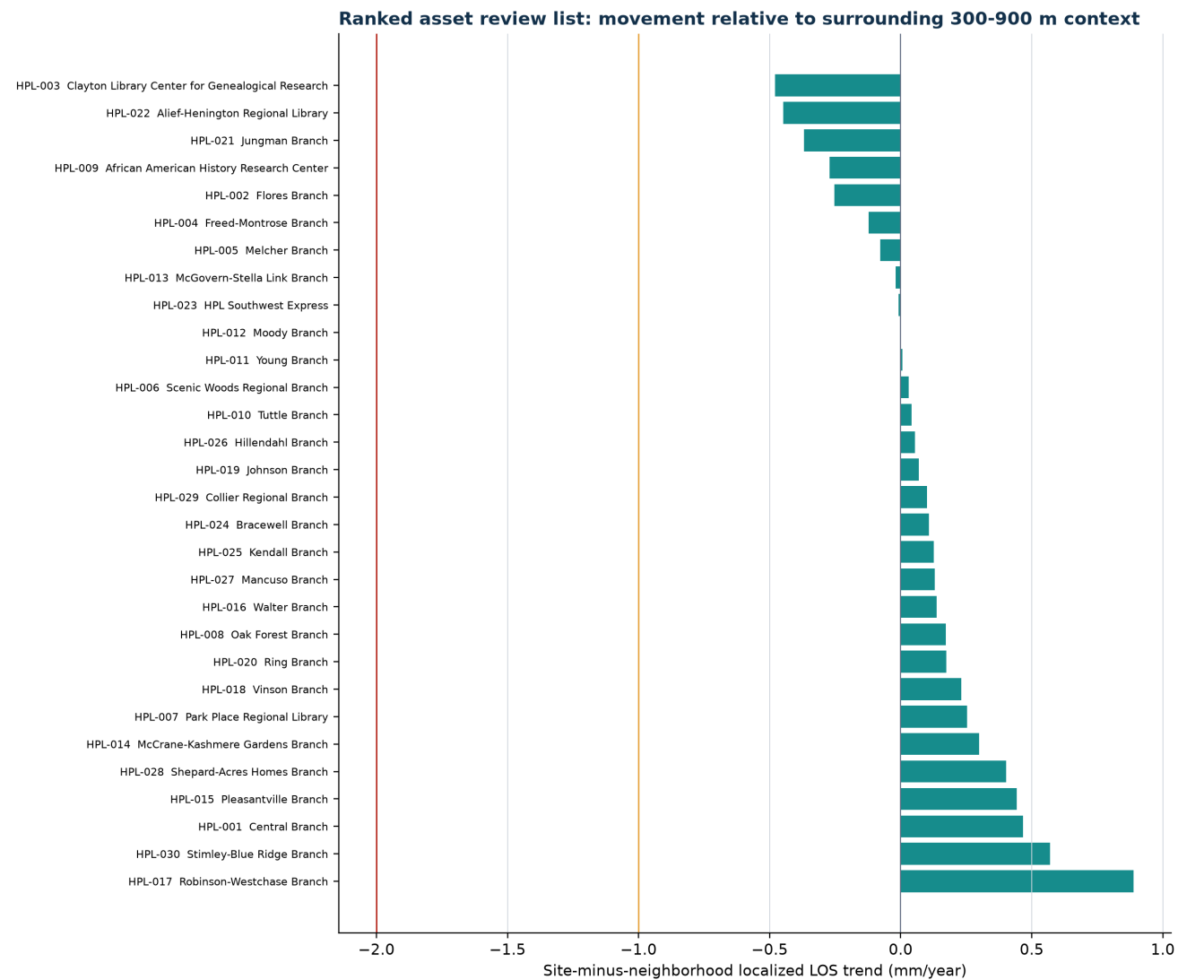


Figure 2. Complete schedule ranked from most negative to most positive site-minus-neighborhood trend. Threshold lines are internal triage rules, not damage limits.

4. Asset-level screening register

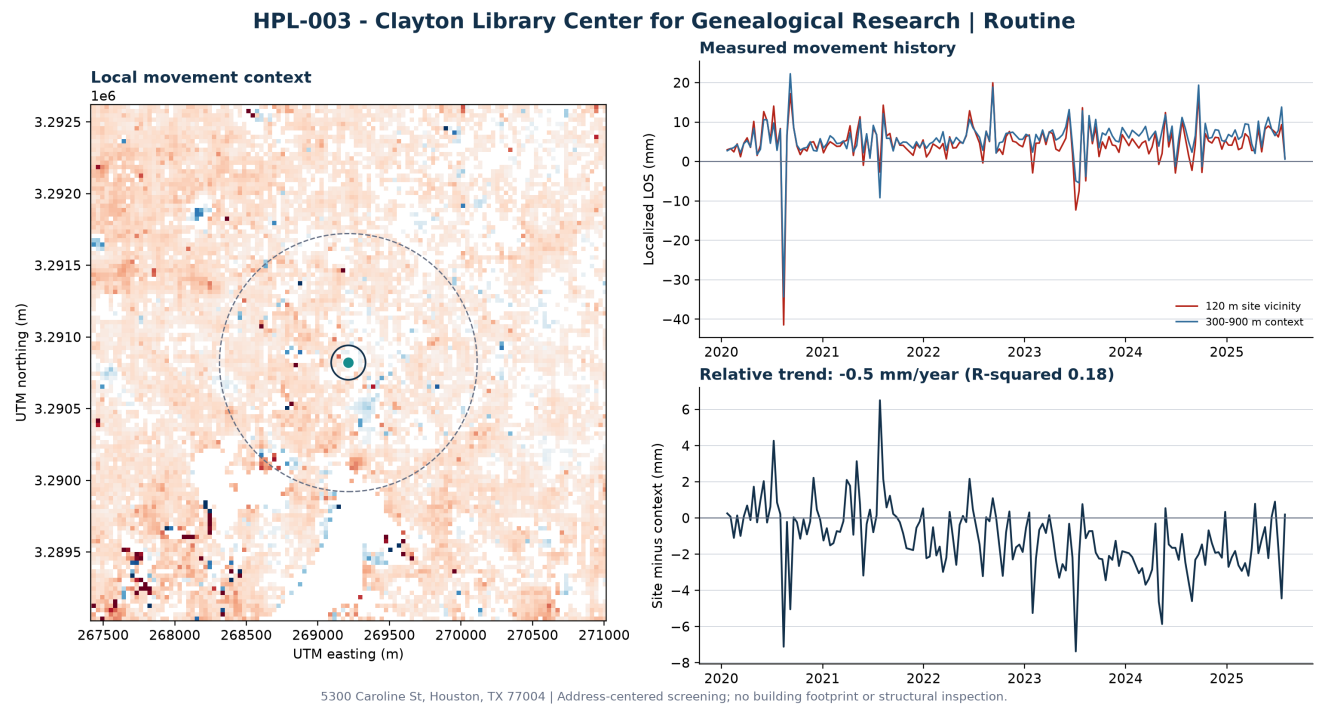
This table is the operational handoff: it can be joined to a client's policy, property, facility, or inspection-management system. Rates are ascending localized LOS in mm/year.

Rank	ID	Asset	Relative rate	R2	Site rate	Valid	Category
1	HPL-003	Clayton Library Center for Genealogical Research	-0.48	0.18	+0.13	100%	Routine
2	HPL-022	Alief-Henington Regional Library	-0.45	0.15	-0.36	100%	Routine
3	HPL-021	Jungman Branch	-0.37	0.16	+0.65	100%	Routine
4	HPL-009	African American History Research Center	-0.27	0.11	+0.33	100%	Routine
5	HPL-002	Flores Branch	-0.25	0.06	+0.45	100%	Routine
6	HPL-004	Freed-Montrose Branch	-0.12	0.01	+0.72	100%	Routine
7	HPL-005	Melcher Branch	-0.08	0.01	+0.46	100%	Routine
8	HPL-013	McGovern-Stella Link Branch	-0.02	0.00	+0.79	100%	Routine
9	HPL-023	HPL Southwest Express	-0.01	0.00	+0.60	100%	Routine
10	HPL-012	Moody Branch	-0.00	0.00	+0.54	100%	Routine
11	HPL-011	Young Branch	+0.01	0.00	+1.10	100%	Routine
12	HPL-006	Scenic Woods Regional Branch	+0.03	0.00	+2.11	100%	Routine
13	HPL-010	Tuttle Branch	+0.04	0.00	+0.57	100%	Routine
14	HPL-026	Hillendahl Branch	+0.05	0.00	+0.47	100%	Routine
15	HPL-019	Johnson Branch	+0.07	0.00	+1.24	100%	Routine
16	HPL-029	Collier Regional Branch	+0.10	0.01	+1.26	100%	Routine
17	HPL-024	Bracewell Branch	+0.11	0.01	+1.67	100%	Routine
18	HPL-025	Kendall Branch	+0.13	0.02	+1.51	100%	Routine
19	HPL-027	Mancuso Branch	+0.13	0.02	+1.28	100%	Routine
20	HPL-016	Walter Branch	+0.14	0.03	+0.49	100%	Routine
21	HPL-008	Oak Forest Branch	+0.17	0.04	+1.05	100%	Routine
22	HPL-020	Ring Branch	+0.17	0.04	+0.92	100%	Routine
23	HPL-018	Vinson Branch	+0.23	0.07	+2.08	100%	Routine
24	HPL-007	Park Place Regional Library	+0.25	0.08	+1.33	100%	Routine
25	HPL-014	McCrane-Kashmere Gardens Branch	+0.30	0.08	+0.88	100%	Routine
26	HPL-028	Shepard-Acres Homes Branch	+0.40	0.14	+0.28	100%	Routine
27	HPL-015	Pleasantville Branch	+0.44	0.16	+1.65	100%	Routine
28	HPL-001	Central Branch	+0.47	0.21	+1.20	100%	Routine
29	HPL-030	Stimley-Blue Ridge Branch	+0.57	0.33	+2.43	100%	Routine
30	HPL-017	Robinson-Westchase Branch	+0.89	0.58	+2.40	100%	Routine

Valid is the share of 165 acquisitions with at least three recommended-mask-valid 30 m pixels inside the address-centered site zone. All 30 locations exceed the evidence threshold. Median available site pixels per acquisition: 50. Minimum geocoding match score: 98.04/100.

5. Evidence attached to the highest-ranked location

HPL-003 (Clayton Library Center for Genealogical Research) is first in the ranked review list, but remains Routine. Its site-minus-neighborhood trend is -0.48 mm/year with R2 0.18. The low R2 means the small negative slope is not a persistent, well-explained linear signal.



6. Additional review exemplars

The next two locations demonstrate how the same evidence package is attached to each ranked asset. Both remain Routine because relative rates are below referral magnitude and weakly consistent.

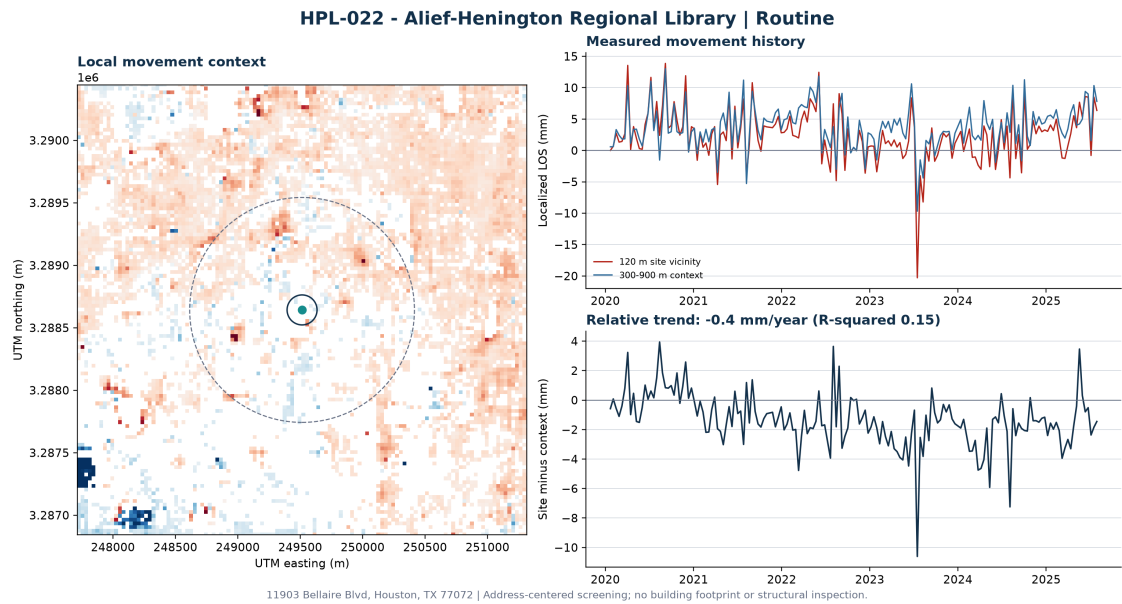


Figure 4. HPL-022, Alief-Henington Regional Library: -0.45 mm/year relative trend, R2 0.15.

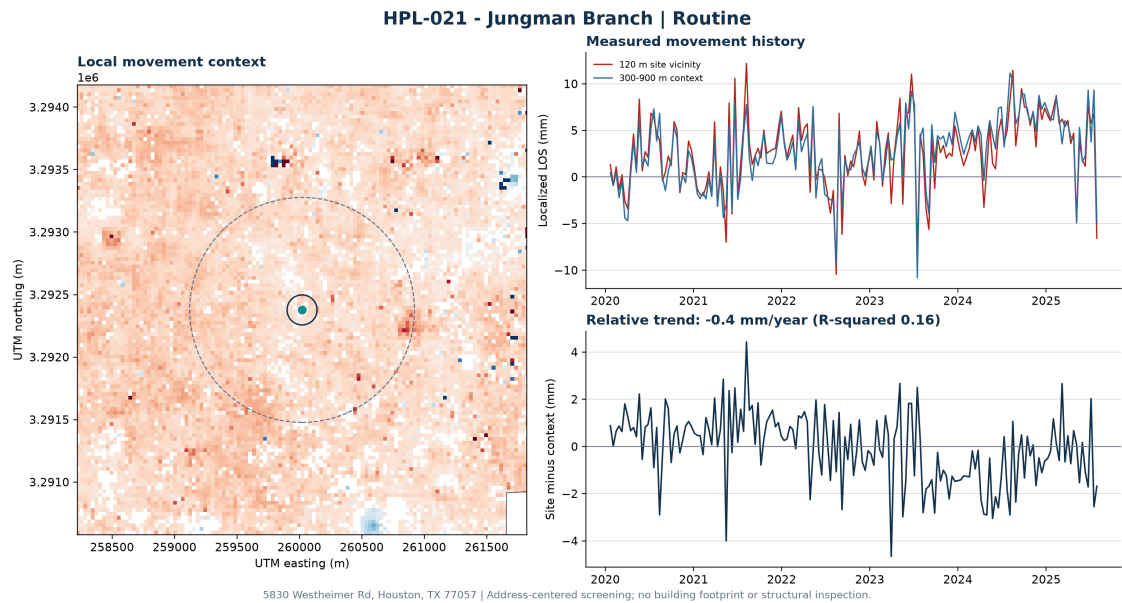


Figure 5. HPL-021, Jungman Branch: -0.37 mm/year relative trend, R2 0.16.

7. Evidence quality and referral logic

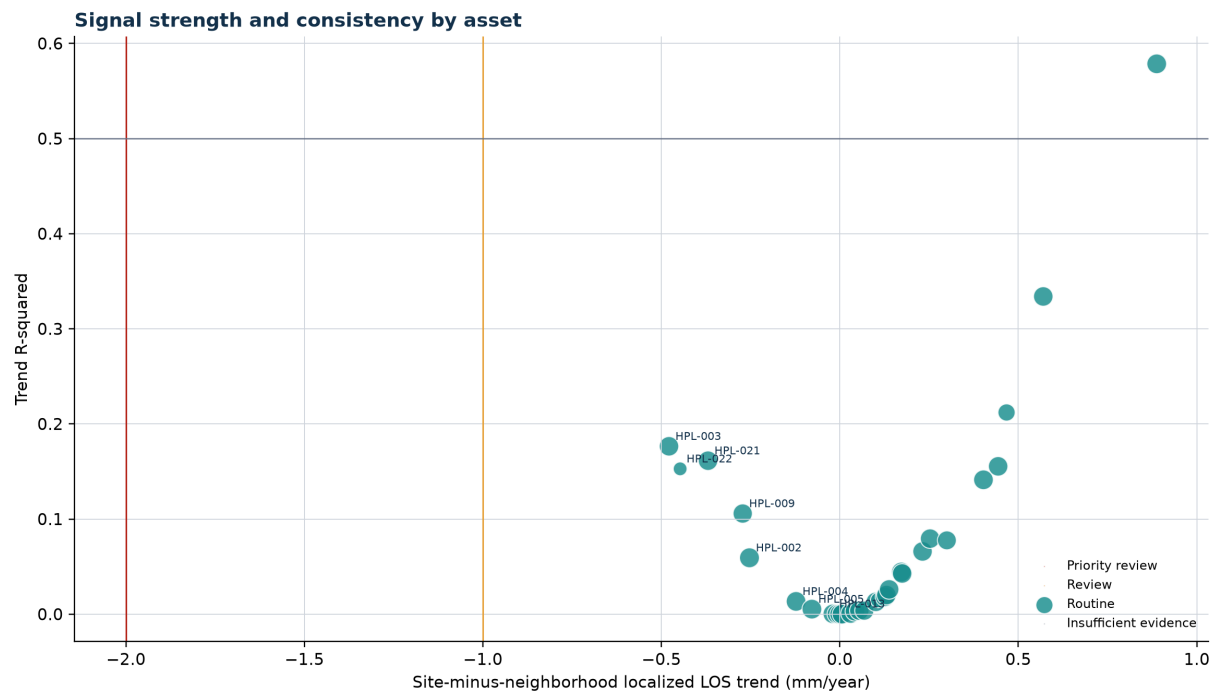


Figure 6. Asset signal magnitude versus trend consistency. Bubble size represents the median number of valid site pixels per acquisition.

7.1 Explicit triage rules

Category	Evidence rule	Operational meaning
Priority review	Relative rate ≤ -2 mm/yr and $R2 \geq 0.5$	Refer for closer data and site review
Review	Relative ≤ -1 with $R2 \geq 0.4$, or site ≤ -2 with $R2 \geq 0.5$	Review with other property evidence
Routine	Evidence sufficient; referral rule not met	No movement-led escalation; refresh
Insufficient	$<55\%$ acquisitions, <5 site pixels, or <80 paired dates	Do not conclude; obtain alternative data

7.2 Limitations the buyer must retain

- Locations are public addresses screened within 120 m; building footprints were not supplied.
- Ascending LOS combines vertical and horizontal movement and is relative, not an absolute elevation change.
- The short-wavelength layer emphasizes local differences and can suppress broad deformation patterns.
- Routine does not mean structurally safe, claim-free, or free of processes the radar cannot measure.

8. Delivery, next steps, and service fit

8.1 What a client receives

Deliverable	How the client uses it
Executive PDF	Referral and inspection decisions for risk committees
Ranked asset CSV/XLSX	Join to policy, facility, or asset-management records
Per-asset indicators	Compare location, neighborhood, trend, and evidence quality
Evidence figures	Attach movement history to referrals and engineering briefs
GIS outputs	Overlay movement classes with exposure and infrastructure layers
Technical appendix	Audit methodology, data lineage, assumptions, and limitations

8.2 Recommended next action for this schedule

Do not commission movement-led inspections solely from this screen. Preserve the results as the portfolio baseline and rerun after twelve months or at the next material renewal review. If condition reports, claims, or planned works identify a concern at any location, replace the address-centered zone with the actual parcel and building footprint and run a focused assessment.

8.3 Why this is a WorldNerve service report

The deliverable answers the portfolio question stated on WorldNerve's insurance and solutions pages: screen every location consistently, rank sites that may deserve inspection or referral, attach the movement evidence, and report coverage quality per asset. The citywide scientific analysis remains available as a technical appendix rather than occupying the decision summary.

8.4 Sources

- [1] WorldNerve, Insurance: underwriting, claims, and portfolio screening. <https://www.worldnerve.com/insurance>
- [2] WorldNerve, Commercial Applications of Satellite Deformation Analysis. <https://www.worldnerve.com/solutions>
- [3] City of Houston, My Houston ZIP Code public facilities list. <https://www.houstontx.gov/zipcodes/>
- [4] Alaska Satellite Facility, OPERA Displacement Product FAQs. https://docs.asf.alaska.edu/datasets/disp_faq/

WorldNerve

Satellite ground movement intelligence for insurers, property owners, engineers, and infrastructure operators.
Dr. Zeeshan Afzal, PhD | zeeshan@worldnerve.com | www.worldnerve.com

Scope statement. This report supports professional judgment. It does not determine structural condition, cause, claim validity, liability, insurability, or safety.