

INFRASTRUCTURE VISION 2026 · PARIS

MOSAIC PARIS

The School Street as a Climate Utility

Paris does not lack cool places.
It lacks a nighttime operating system.

12 sites · 36 months · one verified service



Written abstract

THE GAP

Paris reports more than 1,400 cooling islands and universal seven-minute access by day. After dark, access falls to 68%, leaving 650,000 residents beyond a seven-minute walk. Twelve sites will not close that citywide gap. They will prove a contract Paris can replicate.

THE SYSTEM

Each node keeps the school boundary secure while a separate-access indoor refuge, shaded climate curb, potable-water point, sponge landscape and low-power essential circuit operate as one system. In everyday mode, the street gets cooler and greener. A heat alert opens the staffed refuge. A cloudburst activates storage. An outage preserves tested essential loads.

THE CONTRACT

Hardware is not the product. Verified availability is. N7-SLA counts a resident only when an accessible seven-minute route, assigned safe refuge capacity and every nighttime service gate pass. Before shortlisting, the city pre-registers the selection algorithm, minimum population floor, frozen denominator, demand model, service window, capacity method and required floor.

THE DECISION

The decision requested now is €1.5m for Gate 0. A further €23.5m is conditional on later authority and release-gate evidence. Four demonstrators go first; if they fail, the remaining eight do not proceed. Charging contributes €0 in the base case.

Cooling access collapses after dark

100%

within 7 minutes by day

Citywide 2024 measure

68%

within 7 minutes at night

The operating-hours gap

650,000

residents beyond 7 minutes at night

32% of residents

Twelve sites do not close this citywide gap. They prove a contract Paris can replicate.

CITY TARGET

Zero residents beyond a 7-minute nighttime walk by 2030

Paris must design for hotter nights and harder rain

+2.2°C

summer average

vs 1976–2005

≈10

tropical nights / year

vs about 2

≈4

days above 35°C / year

vs under 1

+10%

heavy-rain intensity

pluvial stress

A single site must switch safely across heat alert, cloudburst and low-power outage conditions.

Paris already owns most of the network



300

Rues aux écoles

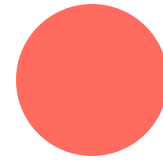
school streets · 103 fully designed and greened



206

Oasis courtyards

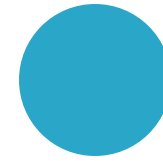
including five nurseries



≈430

Belib' stations

>2,000 charging points



1,300

water points

citywide public network

The scarce asset is not land. It is a boundary-spanning service contract.

MOSAIC is not another courtyard programme

OASIS ALREADY DELIVERS

Spatial cooling

Greener schoolyards

Potential shared refuge

Paris policy already anticipates some Oasis sites as temporary refuges, including at night.



MOSAIC ADDS

01

Independent public entrance

02

Witnessed full-window operating test

03

Capacity-backed N7-SLA

04

Availability payment + repair clock

05

Network rerouting when a site fails

One civic interface.
Four operating modes.
One service promise.

SCHOOL STREET

OASIS

WATER

POWER

AVAILABILITY CONTRACT

opens • staffs • tests • repairs

Payment follows passed service—
not installed equipment.

THE ASSET IS VERIFIED NIGHTTIME ACCESS.

Six services meet at one controlled interface

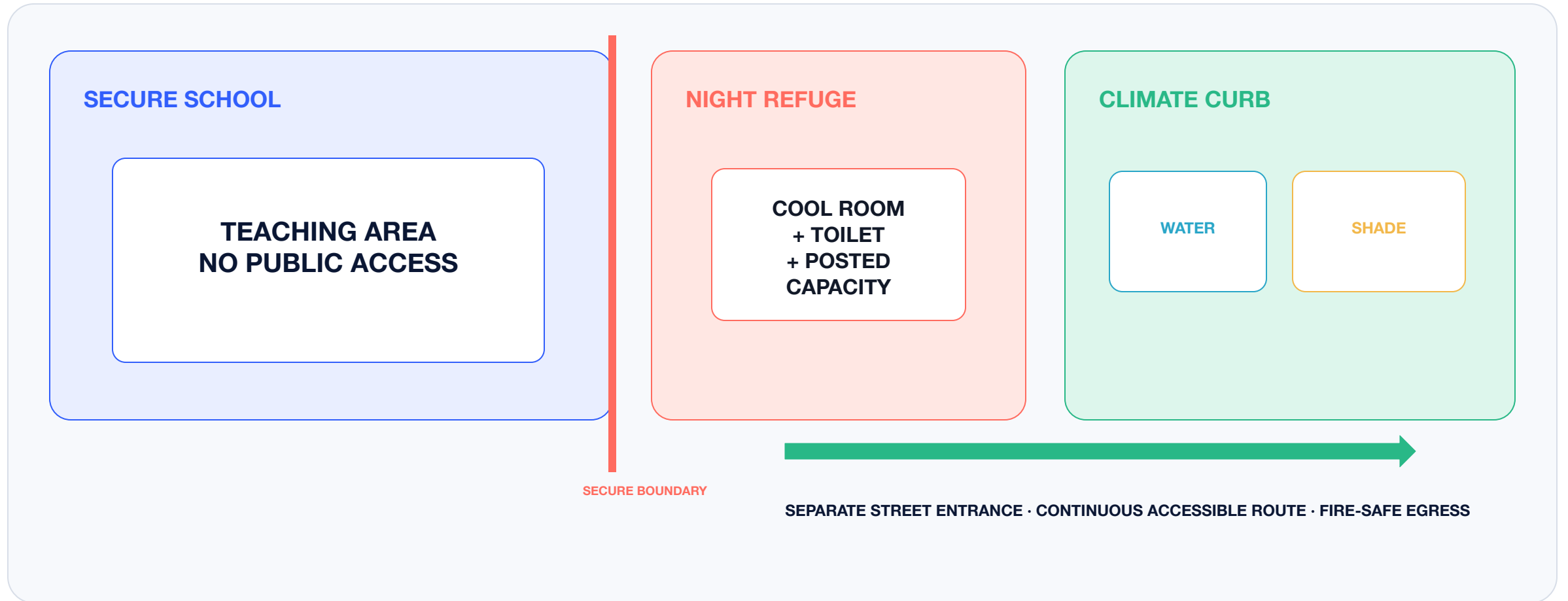


The refuge is a designed edge—not a room borrowed after dark



A1 MAXIMUM 120 · POSTED CAPACITY = LOWEST FIRE / THERMAL / ACCESS / SANITATION / STAFFING LIMIT

School and refuge stay physically independent



Everyday mode earns the emergency mode

DAY

SCHOOL STREET

Pedestrian priority, shaded seating, play, calmer logistics and safe school arrival.

365

OASIS + WATER

Cooler courtyard, potable water, permeable surfaces and visible maintenance every day.

Q

READINESS

Quarterly test log, repair clock and operator drill make latent capacity observable.

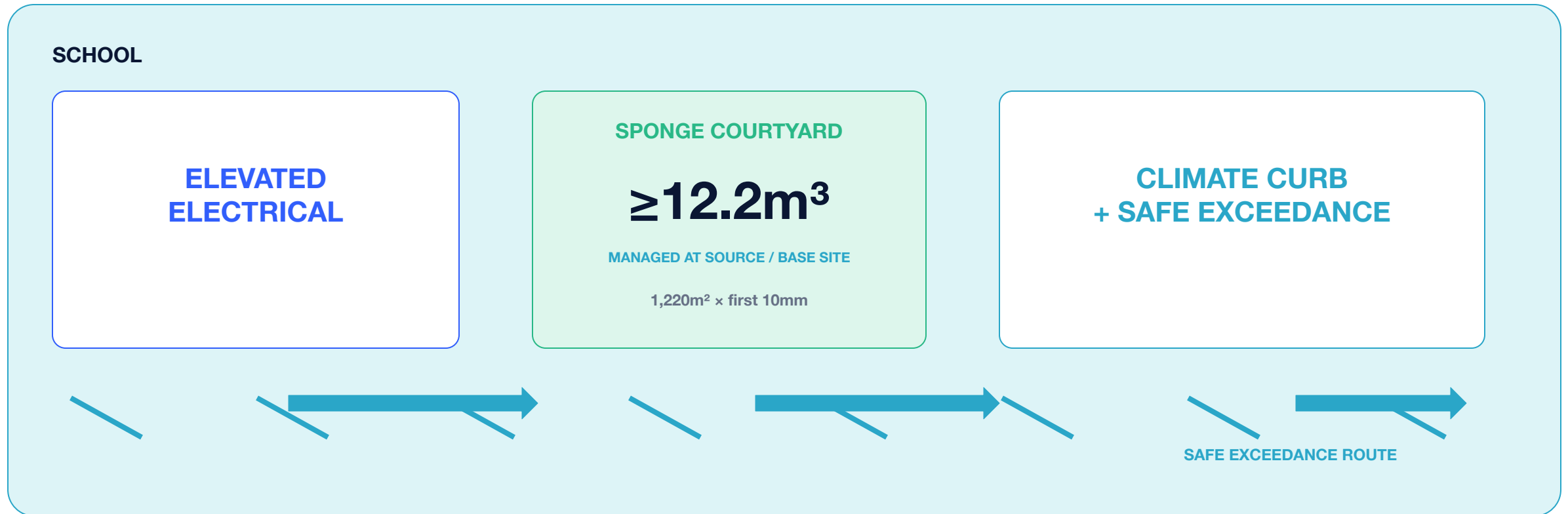
If the system is useful every day, Paris can see it fail before the emergency does.

At night, the street becomes a staffed refuge



A site contributes zero to N7-SLA if any mandatory gate fails.

The street manages rain before it reaches the sewer



A1 SCREEN · ≥12.2m³/site managed at source for the first 10mm · each site passes its own mapped rule; no network averaging.

Outage mode protects only the essential circuit

POWER PRIORITY

P1 LIGHT + COMMS

P2 WATER CONTROLS

P3 WELFARE DEVICES

P4 COMFORT LOADS

WHAT PASSES

✓

Full declared service-window test

Design occupancy + essential loads + reserve margin.

✓

Black start + transfer

Witnessed under degraded communications.

✓

Metered load-shed sequence

Comfort loads switch off before essential loads.

WHAT MOSAIC REFUSES TO PROMISE

NO

Whole-building cooling during grid outage

UNLESS ENGINEERED

Major grid reinforcement or district-cooling extension

Each archetype has a legal-control rejection test

A

COURTYARD + WING

€1.40M BASE

ASSET CONTROLLER

City / school asset directorate

GATE 0 ROUTE

Independent public use + fire / access review

Reject: no separate entrance

B

PERIMETER PAVILION

€2.20M HIGH

ASSET CONTROLLER

City + school / public domain

GATE 0 ROUTE

Building + public-domain + utility approvals

Reject: school cannot be isolated

C

CURB + CIVIC HOST

€0.95M LOW

ASSET CONTROLLER

Public realm + host civic asset

GATE 0 ROUTE

Voirie / utility + host operating right

Reject: no linked refuge capacity

N7-SLA

% of N backed by assigned safe refuge capacity

N = unique residents in the frozen pilot catchments.

within a 7-minute accessible walk

and assigned to a refuge that passed every quarterly service gate

CAPACITY RULE · P95 peak concurrent assigned demand × 1.25 reserve ≤ tested safe occupancy. Freeze dwell time and 30-minute arrival profiles; report turns separately.

MANDATORY GATES

- 1 Open for declared nighttime window
- 2 Water + accessible seating operational
- 3 Independent accessible route + safe egress
- 4 Thermal service threshold passed
- 5 Peak assigned concurrency + 25% reserve ≤ tested occupancy
- 6 Full-window outage + staffing + safeguarding passed

TARGET · 95% YEAR 2 · 100% YEAR 3 · REPORT ABSOLUTE PASSING X / FROZEN N

The metric cannot improve by moving the goalposts



A1 FLOOR · N ≥ 50,000 unique residents, subject to the frozen P95 concurrency test. If capacity fails, change scope or site count—never shrink geography.

Safety and independent access come before scoring

STAGE 1 · PASS / FAIL

A site cannot buy its way past a safety failure.

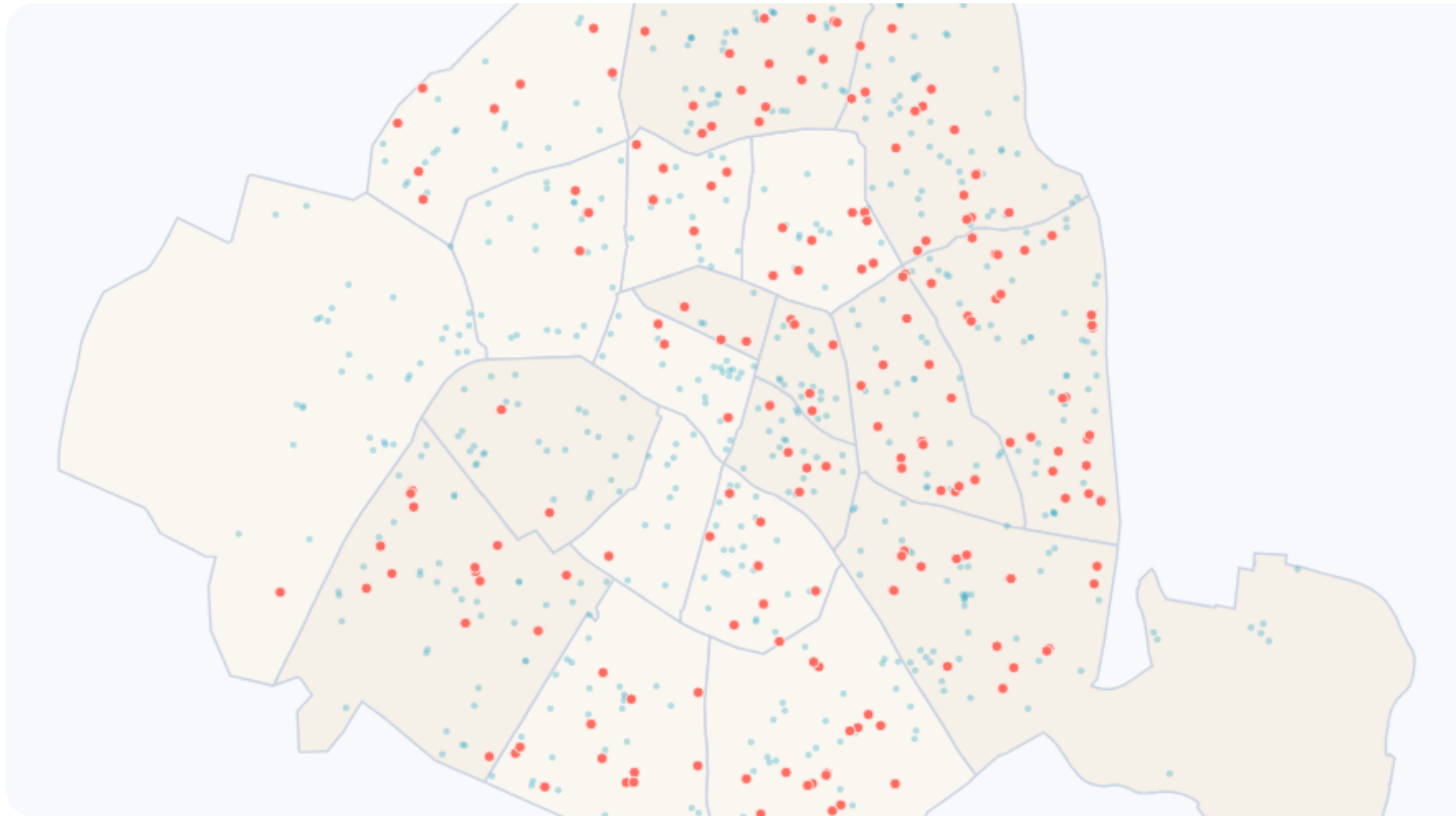
- ✓ Independent street access
- ✓ Fire-safe egress + emergency access
- ✓ No public access to teaching areas
- ✓ Controlled toilet + safeguarding
- ✓ Noise and neighbour operating plan



STAGE 2 · RANK

- 1 N7-SLA gain**
Assigned, capacity-backed residents added
- 2 Redundancy**
Alternative refuge after a site failure
- 3 Deliverability**
Utilities, approvals, works window
- 4 Lifecycle**
Funded operator + repair responsibility

Start from Paris's real assets—then join need and capacity



REAL ASSET INVENTORY

203 Oasis records

geocoded in Paris Data

533 cool facilities

equipment / activities dataset

NEXT ANALYTIC JOIN

Nighttime service gap

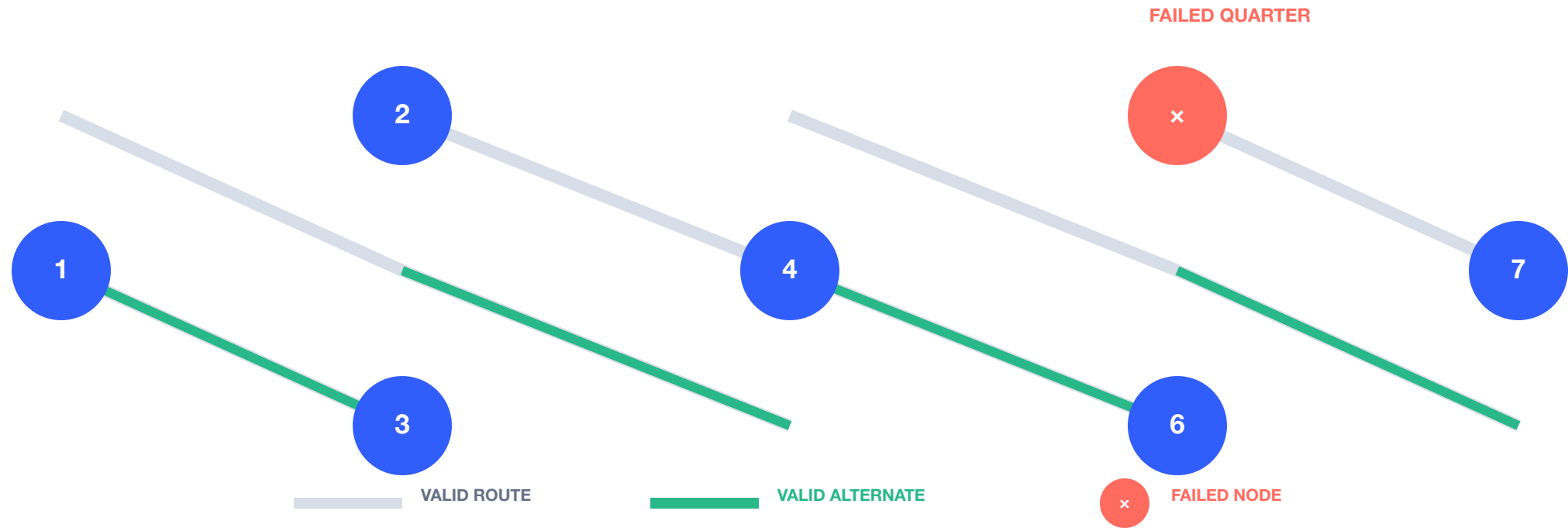
Heat vulnerability

Accessible 7-minute graph

Safe refuge capacity

NO SITES SELECTED

A failed refuge must have a visible alternate route



Alternate counts only if ≤ 7 minutes, accessible, open and capacity-available; otherwise exclude and issue live wayfinding.

Equity determines where the pilot begins



Three futures change the operating response—not the interface

SCENARIO	SIGNAL	OPERATING STRESS	DESIGN RESPONSE
<div>A</div>	HOTTER NIGHTS	Longer windows · higher overnight occupancy	Extend hours · protect staffing · raise thermal test
<div>B</div>	TIGHTER OPERATIONS	Hiring and appropriation pressure	Shared operator · modular opening · no-regret minimum
<div>C</div>	COMPOUND EVENT	Heat + cloudburst + network outage	Isolate essential load · test thermal floor · reroute

The service boundary stays fixed. Only the operating envelope, staffing model and release decision change.

Scenario A · Hotter nights arrive early

SIGNAL

**Longer heat windows.
More consecutive
nights. Higher
overnight occupancy.**

TRIGGER

Two quarters exceed the operating envelope.

1

Extend opening windows

Staffing is capacity—not an afterthought.

2

Add perimeter pavilion

Only where indoor independence cannot scale.

3

Raise thermal test

Do not count a merely open, non-compliant room.

4

Protect recovery time

Operator welfare and maintenance remain funded.

Scenario B · Staffing and budgets tighten

THE WRONG RESPONSE

Install hardware; cut service

The city keeps a courtyard and loses the nighttime promise.



THE RESILIENT RESPONSE

SHARED OPERATOR

Cluster sites into one night route and one control room.

NO-REGRET MINIMUM

Water, access, comms and shelter pass before optional scope.

MODULAR OPENING

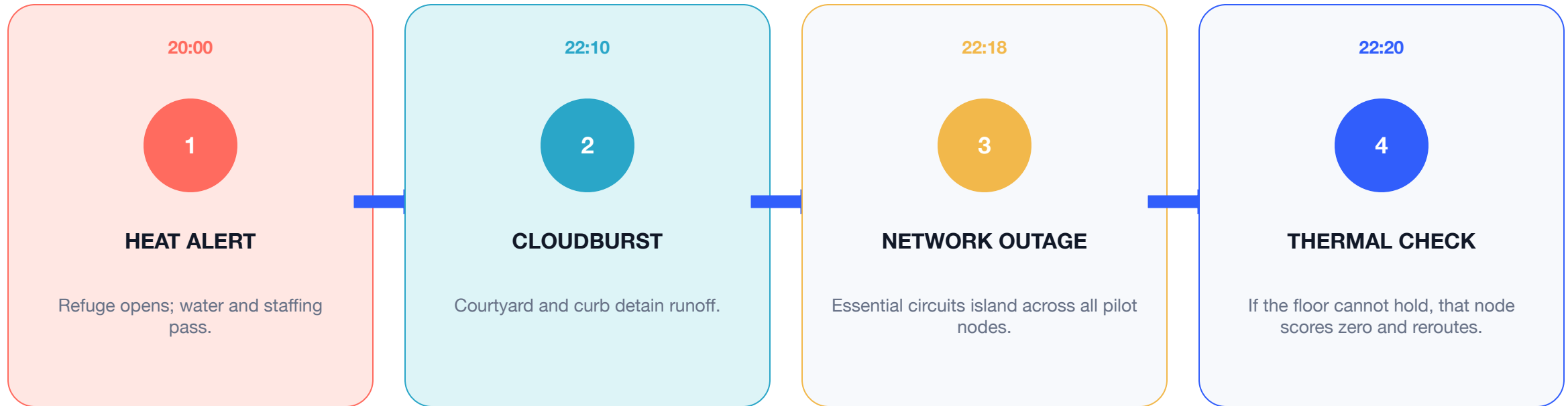
Open verified rooms; do not pretend every space is available.

PAY FOR PASSING

Failed readiness tests reduce payment and start the repair clock.

The service floor survives by shrinking optional scope—not by hiding readiness failure.

Scenario C · Heat, cloudburst and outage coincide



Outage mode never preserves N7 credit by silently sacrificing the thermal service floor.

Each scenario changes a defined design decision

DECISION	A · HOTTER NIGHTS	B · TIGHTER OPS	C · COMPOUND EVENT
OPENING WINDOW	Extend staffed hours	Cluster and rotate	Stage by trigger
PHYSICAL CAPACITY	Add modular refuge	Protect minimum kit	Separate wet / dry systems
POWER	Meter thermal study	Essential circuit only	Witness mode transition
PAYMENT	Higher availability band	Pass / fail floor	Event-log verification
STOP CONDITION	Thermal threshold fails	Unstaffed opening	Unsafe exceedance route

What MOSAIC Paris refuses to promise

01 CITYWIDE IMPACT

Twelve sites prove a model; they do not close the 650,000-person gap.

02 OPEN SCHOOL ACCESS

Public access stops at a separate, controlled refuge boundary.

03 CHARGING-FUNDED SERVICE

Charging contributes €0 in the base case.

04 OUTAGE COOLING

Only metered essential loads are promised.

05 UNGATED SCALE

Eight sites wait until four demonstrators pass.

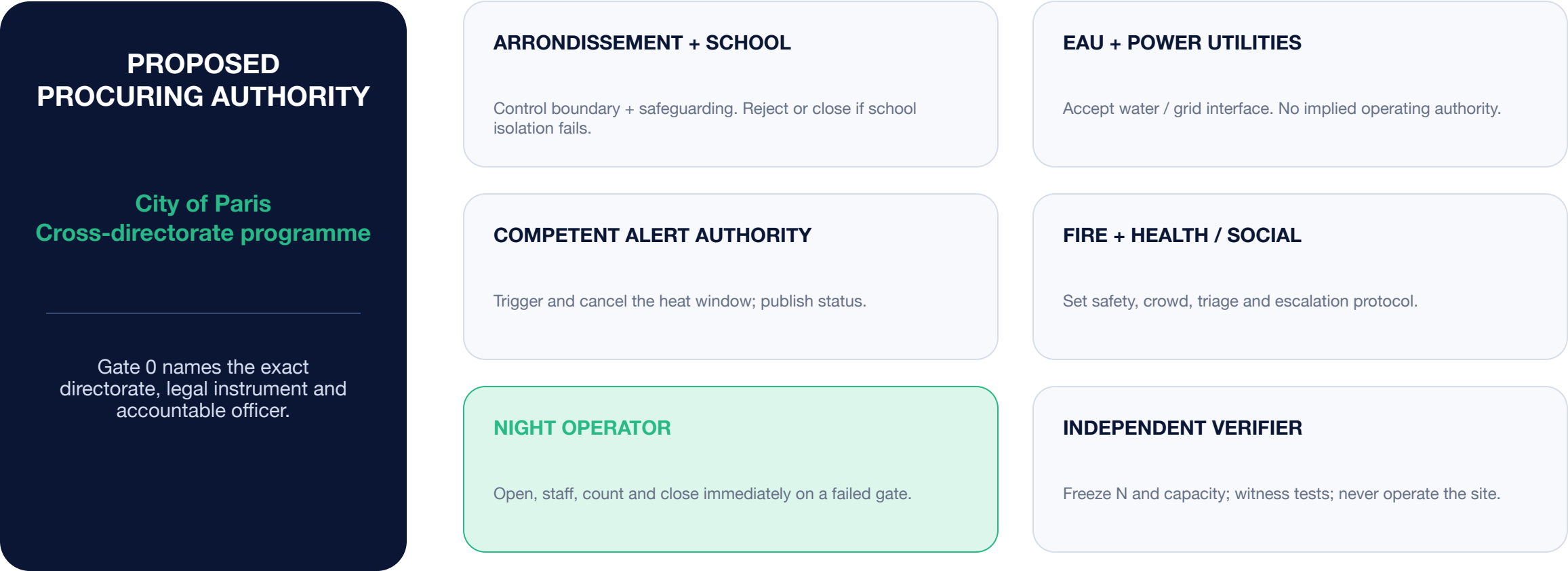
06 UNFUNDED GREENERY

No tree or water feature without a maintenance owner.

The remaining risks have owners and stop conditions

PRIORITY	RISK	ACCOUNTABLE OWNER	STOP / RESPONSE
P1	Independent access fails	City / school	Reject site
P1	Night operator unavailable	Procuring authority	Do not open
P1	Fire or safeguarding unresolved	Fire / school	No Gate 1 release
P2	Tender estimate exceeds ceiling	Programme lead	Reset scope or stop
P2	Thermal floor not achieved	Design lead	Do not count in N7
P2	Water / landscape repair backlog	Operator	Payment reduction

One authority procures; specialists remain accountable



A/R MAP · Alert: competent authority A/R · Close/reopen: named controller A, operator R · Freeze N/method/capacity: controller A, verifier R
Reroute: controller A, operator R · Incident command: statutory emergency authority A/R · Payment: controller A, verifier R

Readiness is purchased, tested and independently verified



FAILURE WATERFALL

Gate failure → zero N7 contribution → payment reduction → repair clock → public log

Critical safety failure also closes the site until re-acceptance.

€25m is a proposed conditional envelope—not committed funding

BASE SITE WORKS · €1.40m		
●	1,220m² Oasis + water + sponge × €450/m²	€0.55m
●	Indoor refuge · fire · access · thermal	€0.35m
●	Climate curb + public realm	€0.25m
●	Essential power + comms + instruments	€0.15m
●	Utility interfaces + enabling	€0.10m
P9 supports the historic Oasis ratio—not the added refuge, curb or power scope.		
36-MONTH PROGRAMME · €25.0m		
■	12 × €1.40m site works	€16.8m
■	Design · surveys · permits · commissioning	€2.0m
■	Capital contingency	€2.0m
■	Readiness · staffing · drills · maintenance	€3.2m
■	Independent assurance · data · evaluation	€1.0m
€20.8m CAPEX		€4.2m OPEX

OPEX BASIS	45 alert nights/y × 10h × 2 staff/site × 12 × 3y = 32,400 staff-h · €45/h burden = €1.46m	LOW / BASE / HIGH
	Supervision/security €0.54m · drills €0.24m · maintenance €0.66m · occupancy-linked surge €0.30m	
		€19.6 / €25.0 / €34.6m

A1 concept quantities. Excludes land, VAT, major grid work, district cooling and whole-building outage cooling; reset after 30% design and tender evidence.

Authorize proof now; release scale only after the service passes

DECISION REQUESTED NOW

Authorize €1.5m for Gate 0.

€23.5m CONDITIONAL ENVELOPE

€8.5m Gate 1 + €15.0m Gate 2 · release only after legal, capacity and tender gates pass.

- | | |
|--------------------|------------------------------------|
| ● CITY FINANCING | Subject to authority + eligibility |
| ● FONDS VERT | Competitive application |
| ● EU / FEDER / EUI | Award upside only |
| ● BELIB' CASH | €0 base case |

COST PER VERIFIED SERVICE

actual 36-month public expenditure

Σ quarterly passing assigned unique residents $\div 4$

= cumulative verified N7 service resident-years

PLANNING N = 50k

150k res-years

€167 / resident-year

PLANNING N = 100k

300k res-years

€83 / resident-year

PLANNING N = 150k

450k res-years

€56 / resident-year

At conditional €25m spend; planning-N sensitivities, not demand, capacity, coverage or impact forecasts.

Four sites prove the service; twelve test a repeatable Paris standard



Twelve nodes do not prove citywide impact. They test whether one verified service standard can repeat across Paris archetypes.

Sustainability becomes measurable before the programme scales

A1 BASE-SCOPE ARITHMETIC

14,640m²

12 × 1,220m² Oasis + water + sponge work area

Not surveyed area. Not newly greened area. Not an outcome claim. Gate 0 resets the quantity by site.

✓ CARBON

Whole-life baseline + reuse-first budget

✓ WATER

Verified balance + potable compliance

✓ ECOLOGY

Survival target + biodiversity-safe planting

✓ DRAINAGE

A1 screen ≥12.2m³/site + safe exceedance

✓ REPAIR

Named owner + parts strategy + response clock

✓ REVERSIBILITY

Recoverable curb works + equipment

GATE 1 · Pre-register independently verified Gate 2 thresholds for thermal performance, runoff detention, whole-life carbon and planting survival. No threshold, no scale release.

Every material claim is sourced; every design number is labelled

P1

Paris Ecological Transition Report 2024

day/night 7-minute gap

P3

Ville de Paris press · school streets / Oasis

300 / 206 counts

P5

Paris Climate Plan 2024–2030

night refuge policy fit

P7

Ville de Paris · heat / water page

1,300 water points

P9

Inspection générale · Oasis study 2023€450/m² benchmark

P11

European Urban Initiative · Paris OASIS

€4.996m precedent

P13

Ville de Paris · ParisPluie zoning 2026

first 10mm at-source minimum

P2

Météo-France · future Île-de-France climate

2050 heat + rain vectors

P4

Ville de Paris · Les cours Oasis

refuge potential

P6

Ville de Paris · Belib'

≈430 / >2,000

P8

Paris concessions report · exercise 2024

Belib' economics / 3 stations

P10

French Ecology Ministry · Fonds Vert

eligibility, not award

P12

Ville de Paris Open Data · ODbL

203 Oasis / 533 cooling records

A1

Proposal assumption register

KPI, budget, targets, roadmap

MOSAIC PARIS

A cool place matters only if it is open when the city needs it.

THE SCHOOL STREET AS A CLIMATE UTILITY

12 sites · 36 months · N7-SLA · conditional €25m envelope

Verified access—not installed hardware.

