Parking NL: synthetic persona UX test

Date: 11 Oct 2026 (Sunday morning, Europe/Amsterdam). **Target:** production, https://parking.davidbroza.dev.

> **Synthetic test, not real users.** The personas, think-aloud quotes and SUS-style scores below are a *simulation* written by Grok Bot. Every quote is based on what was actually on screen in the Playwright screenshot for that step. The flows ran as real scripted sessions on production: real touch taps and keyboard typing in WebKit (iPhone 14) and Chromium (Pixel 7), and a desktop browser at 1440×900. Success, taps, off-screen swipes and time were measured. Use this to find problems, not to validate with users. Test 5 real people next.

Artifacts: `before/` and `after/` folders, each with `shots/` (one screenshot per step), `video/` (one video per persona) and `results.json`. Script: `e2e/ux.ts` (`bun e2e/ux.ts <label>`).

Tasks given

How tasks were given: these are scripted tasks, not spoken prompts. Each task text below is copied verbatim from the Playwright script that ran it (`e2e/ux.ts`); the script performed the steps on production and decided pass/fail from the page (DOM) with the success check shown. The synthetic think-aloud was written afterwards from the screenshots.

P1 Sanne (commuter, iPhone, NL)

Device: iPhone 14 profile (WebKit, 390×664 CSS px viewport, touch); locale nl-NL; geolocation allowed at Den Haag centre (52.0799, 4.3113); video recorded
Scenario: Opens the app next to her car in Den Haag; works near Delft station tomorrow.

Id	Task (verbatim)	Success check
P1F1	Eerste bezoek: begrijpen wat de app doet en goedkoopste plek bij huidige locatie (Den Haag Centrum) zien	Results are listed and the summary line ("... opties ...") is shown.
P1F2	Gratis parkeren in de buurt vinden	After tapping the “Gratis” filter at least one result remains.
P1F3	Zoeken naar werkadres 'Station Delft' (één hand), resultaten bekijken	Search field now shows a Delft place and results are listed.
P1F4	Morgen (maandag) 08:30 voor 8 uur werkdag: opties vergelijken, kaart openen en tarief begrijpen	A result's detail card opens and shows a tariff/option/“Prijs onbekend” section.
P1F5	Navigeren met Apple Kaarten (iPhone-standaard) of Waze	An Apple Maps or Waze link is offered.
P1F6	Deel de plek met collega (deel-knop)	A share control exists.

P2 Tom (visitor, Android, EN)

Device: Pixel 7 profile (Chromium, 412×839 CSS px, touch); locale en-GB; geolocation denied; video recorded
Scenario: UK visitor going to a Ziggo Dome concert tomorrow 19:00 for 4 h; also checks Ahoy Rotterdam.

Id	Task (verbatim)	Success check
P2F1	First visit with location denied: understand what to do	The page shows the “Today” time context and a search field.
P2F2	Search the venue 'Ziggo Dome' and land there	Search field now shows Ziggo Dome.
P2F3	Set tomorrow 19:00 for 4 h	URL holds tomorrow 19:00 (t=...T19:00) and d=240.
P2F4	Find a P+R / cheap option and understand what P+R is	With the P+R filter on, at least one P+R result is listed.
P2F5	Open the cheapest option, understand price/flags, share with friend	The first result opens its detail card.
P2F6	Search 'Ahoy Rotterdam' with Enter (keyboard Go)	Search field now shows Ahoy.

P3 Priya (fleet PM, desktop)

Device: Desktop Chromium, 1440×900; locale en-GB
Scenario: Product manager evaluating the API/MCP, limits, pricing and licence terms for business use.

Id	Task (verbatim)	Success check
P3F1	From the app, find developer docs: MCP URL, REST example, limits	/developers shows the /mcp URL and a curl example.
P3F2	Try the REST example from the docs	The REST call from the docs returns HTTP 200 with results.
P3F3	Connect via MCP: initialize, tools/list, tools/call find_parking	tools/call find_parking returns content without error.
P3F4	Pricing: understand tiers and send an interest form	The form confirms with “Thanks”.
P3F5	Legal check: API terms + data licences (ODbL, resale)	API terms mention resale and the data-licence page mentions ODbL.

Personas (synthetic)

	Persona	Device / context	Goal	Constraints
P1	**Sanne, 34**, policy officer, lives in Delft, works in Den Haag centrum	iPhone 14, Safari, **Dutch** UI, location **allowed**	Cheapest or free spot near work; tomorrow a full 8 h day near Delft station	In a hurry, one-handed, standing next to the car
P2	**Tom, 41**, visitor from the UK	Pixel 7, Chrome, **English**, location **denied** (privacy)	Ziggo Dome concert **tomorrow 19:00 for 4 h**; also checks Ahoy Rotterdam	Doesn't know Dutch zones, P+R or "blauwe zone"
P3	**Priya, 38**, product manager at a fleet/navigation company	Desktop, 1440×900, English	Evaluate the API/MCP, limits, pricing and licence terms for business use; leave contact details	Needs facts fast, sceptical about data rights

Method

- 17 scripted flows (6 + 6 + 5) on production. Each step records a screenshot, an observation pulled from the DOM, the time and the taps. "Off-screen swipes" counts how often a needed control was off-screen and had to be scrolled to first (friction).
- **Success criteria** (strict, from the DOM):
- P1F4 passes only if the tariff card actually opens.
- P1F5 passes only if the iPhone user is offered Apple Maps or Waze.
- P1F6 passes only if a share control exists.
- Persona 3 used the REST call and MCP JSON-RPC exactly as written on `/developers`. Persona 3's contact-form test lead is named "SYNTHETIC UX TEST (ignore)".
- Synthetic SUS-style ease: a 0–100 estimate from the persona's perspective after all of that persona's flows. **This is a synthetic estimate, not a measured SUS.**
- Note: the run happened on a **Sunday morning**, when many street zones are free. That's why P1F1/P1F2 show many "Gratis" results. P1F4 and P2F3 deliberately set a weekday or evening time.

Results (before vs after fixes)

Flow	Task	Before	After	Taps before→after	Off-screen swipes before→after	Time before→after (s)
P1F1	Eerste bezoek: begrijpen wat de app doet en goedkoopste plek bij huidige locatie (Den Haag Centrum) zien	✅	✅	0→0	0→0	7.6→7.5
P1F2	Gratis parkeren in de buurt vinden	✅	✅	2→2	0→0	2.7→2.6
P1F3	Zoeken naar werkadres 'Station Delft' (één hand), resultaten bekijken	✅	✅	2→2	0→0	6.1→6.1
P1F4	Morgen (maandag) 08:30 voor 8 uur werkdag: opties vergelijken, kaart openen en tarief begrijpen	❌	✅	5→6	2→1	6.5→6.4
P1F5	Navigeren met Apple Kaarten (iPhone-standaard) of Waze	❌	✅	0→0	0→0	0.3→0.2
P1F6	Deel de plek met collega (deel-knop)	❌	✅	0→1	0→1	0.3→1.4
P2F1	First visit with location denied: understand what to do	✅	✅	0→0	0→0	8.0→6.9
P2F2	Search the venue 'Ziggo Dome' and land there	✅	✅	2→2	0→0	6.7→6.8
P2F3	Set tomorrow 19:00 for 4 h	✅	✅	4→5	0→0	4.2→4.5
P2F4	Find a P+R / cheap option and	✅	✅	4→4	0→0	3.5→3.4

Flow	Task	Before	After	Taps before→after	Off-screen swipes before→after	Time before→after (s)
	understand what P+R is					
P2F5	Open the cheapest option, understand price/flags, share with friend	✅	✅	1→1	0→0	2.9→2.8
P2F6	Search 'Ahoy Rotterdam' with Enter (keyboard Go)	✅	✅	2→2	0→0	6.8→6.7
P3F1	From the app, find developer docs: MCP URL, REST example, limits	✅	✅	1→1	0→0	5.4→5.3
P3F2	Try the REST example from the docs	✅	✅	0→0	0→0	0.5→0.5
P3F3	Connect via MCP: initialize, tools/list, tools/call find_parking	✅	✅	0→0	0→0	0.3→0.8
P3F4	Pricing: understand tiers and send an interest form	✅	✅	1→1	0→0	4.5→4.5
P3F5	Legal check: API terms + data licences (ODbL, resale)	✅	✅	2→2	0→0	2.7→2.7

Persona	Before	After
Sanne (iPhone, NL)	3/6	6/6
Tom (Android, EN)	6/6	6/6
Priya (desktop, API)	5/5	5/5
All	**14/17**	**17/17**

Observed facts per flow (before):

Flow	Observed (before)
P1F1	summary: 41 opties binnen 1.5 km · 2 uurCheapest parking for your stay; top3: Centrum - Kernwinkelstraten · Straat · 153 m · 's-Gravenhage · Gratis · / Centrum - Denneweg · Straat · 622 m · 's-Gravenhage · Gratis · / Centrum - Dagtarief · Straat · 718 m · 's-Gravenhage · Gratis · ; explains purpose on screen: true
P1F2	free results: 14; first: Centrum - Kernwinkelstraten · Straat · 153 m · 's-Gravenhage · Gratis ·
P1F3	origin now: Adres, plaats of postcode · nu: Stationsplein, 2611BV Delft; top: Straatparkeren Gebied C · Straat · 466 m · Delft · Gratis · prijs mogelijk gewijzigd · / Gratis parkeren · Buitenwatersloot · Gratis (OSM) · 694 m · Gratis ·
P1F4	summary: 41 opties binnen 1.5 km · 8 uurCheapest parking for your stay; top3: Gratis parkeren · Buitenwatersloot · Gratis (OSM) · 694 m · Gratis · / Gratis parkeren · Leeuwenstein · Gratis (OSM) · 814 m · Gratis · / Gratis parkeren · Kogelgieterij · Gratis (OSM) · 831 m · Gratis · ; card has tariff table: false; day max shown: false; flags: prijs mogelijk gewijzigd,prijs mogelijk gewijzigd,prijs
P1F5	nav links: protomaps.com, protomaps.com; apple: false, waze: false
P1F6	share buttons: 0
P2F1	placeholder: Address, place or postcode · now: Utrecht centrum; english UI: true; explains location denied / prompts search: false
P2F2	suggestions: Search “Ziggo Dome” (incl. landmarks); origin: Address, place or postcode · now: Ziggo Dome, Burgemeester Stramanweg, Zuidoost
P2F3	url t=2026-10-12T19:00 d=240; summary: 28 options within 1.5 km · 4 h
P2F4	P+R results within radius: 2; first: P+R Stationsplein (Duivendrecht) · P+R · 1.0 km · Nederlandse Spoorwegen · live · €10,76 · price may have changed; P+R explained anywhere: false
P2F5	card mentions arrival tomorrow 19:00: true; share: 0
P2F6	origin: Address, place or postcode · now: Rotterdam Ahoy, 10, Ahoyweg
P3F1	mcp url: true; curl example: true; limits stated: false; openapi description limits: Anonymous: 20 req/min per IP
P3F2	status 200 in 459 ms; results: 3; first: Tariefzone 2 ma-za 09-24 zo 12-24 (T12A) 0; spoken: Best option near Rijksmuseum, Stadhouderskade, Museumkwartier for 3 hours: street parking, tariff zone 2, free, 8 minute; dest resolved: {"query":"Rijksmuseum Amsterdam","name":"Rijksmuseum, Stadhouderskade, Museumkwartier","lat":52.3598
P3F3	server: parking-nl; tools: find_parking,get_tariff,geocode; call ok: true; first line: {"destination":{"query":"Ahoy Rotterdam","name":"Rotterdam Ahoy, 10, Ahoyweg","lat":51.8832963,"lon":4.4883655},"arrival":"2026-10-11T09:00"
P3F4	confirmation: true; error: none
P3F5	resale clause: true; ODbL: true; draft note visible: true; SLA stated: true

Think-aloud highlights (synthetic, before fixes)

P1 Sanne (iPhone, NL) - *P1F1 first visit* (shot): "Nice, it found me straight away: 41 options, 'vanaf Gratis'. The list says 'Centrum – Kernwinkelstraten · Gratis'. On a Sunday morning, fine." ✅ - *P1F2 free filter* (shot): "'Gratis' is one tap away. 14 free options. Good." ✅ - *P1F3 search 'Station Delft'* (shot): "Typing with my thumb works and the suggestion lands on Stationsplein. But why does a free street zone say 'prijs mogelijk gewijzigd'?" ✅ (minor confusion) - *P1F4 tomorrow 08:30 for 8 h* (shot, card attempt): "The date, time and 7 duration chips eat the whole sheet. '8 uur' was off-screen to the right; I only found it by swiping the row. I see exactly **one** result under all those controls, and the list won't scroll unless I drag the sheet all the way up. I gave up trying to open a paid garage." ❌ **(major)** - *P1F5 navigate* : "There's only a Google Maps button. I use Apple Maps and Waze in the car." ❌ **(major)** - *P1F6 share with a colleague*: "There's no share button. I'd have to copy the browser URL, and that doesn't even point to this place." ❌ **(major)** - **Synthetic SUS-style estimate: 58/100.**

P2 Tom (Android, EN, location denied) - *P2F1* (shot): "I said no to location and now it shows me … Utrecht? 'now: Utrecht centrum'. I'm not in Utrecht. Nothing tells me why or what to do." ✅ by the criteria, but confusing **(major)** - *P2F2 'Ziggo Dome'* (shot): "No normal suggestion, just 'Search "Ziggo Dome" (incl. landmarks)'. I tapped it and it worked." ✅ (minor) - *P2F3 tomorrow 19:00, 4 h* (shot): "Tomorrow, then a time list, then '4 h'. Clear, 28 options." ✅ - *P2F4 P+R* (shot): "P+R Duivendrecht, €10.76 with a 'live' tag. But what *is* P+R? Do I need a train ticket? Nothing explains it." ✅ (minor) - *P2F5 card* (shot): "The card knows it's tomorrow 19:00, good. Again no way to send this to my friend." ✅ (share missing, see P1F6) - *P2F6 'Ahoy Rotterdam' + Go*: "Pressing Go took me to Rotterdam Ahoy." ✅ - **Synthetic SUS-style estimate: 66/100.**

P3 Priya (desktop, API/MCP) - *P3F1 docs* (shot): "The MCP URL and curl example are right there. Limits say 'Anonymous: 20 tool calls/min', but the OpenAPI spec says 20 and the API terms say 30/min + 500/day. Which one is true?" ✅ (minor: inconsistent limits) - *P3F2 REST*: "200 in under a second, 3 results, and a nice spoken_summary. But `name` is a raw RDW code: 'Tariefzone 2 ma-za 09-24 zo 12-24 (T12A)'. I'd have to clean that up." ✅ (minor) - *P3F3 MCP*: "initialize, tools/list (find_parking, get_tariff, geocode) and tools/call all work without auth. Easy to try." ✅ - *P3F4 pricing + form* (shot): "Tiers are clear and labelled indicative. The form confirmed with 'Thanks'." ✅ - *P3F5 legal* (shot): "The resale clause, ODbL share-alike and 'no SLA' are spelled out. The 'Draft template' note is honest, but I'll need the final version before signing." ✅ - **Synthetic SUS-style estimate: 80/100.**

Findings (severity-ranked)

#	Sev	Finding	Evidence	Fix
F1	**Critical** (mobile core task)	On phones the bottom sheet at its default height showed controls (day, time, **7 duration chips**, 6 filter chips) and only ~1 result. The list **could not scroll** until the sheet was dragged to full height, so comparing options and opening a card failed (P1F4).	before	Arrival + duration collapse into one summary button ("Morgen 08:30 · 8 uur ▾") that opens the pickers. Duration chips wrap (none hidden). The list scrolls at every sheet height. after
F2	**Major**	Chip rows (durations "8 uur/1 dag", filters "Terrein/Blauwe zone") were cut off at the right edge with no hint that there is more.	before	Durations wrap. The filter row gets a fade at the right edge.
F3	**Major**	When location is denied, the app silently shows **Utrecht** results as "now: Utrecht centrum", with no explanation and no call to action (P2F1).	before	Banner: "Location is off. Search an address or place, or try again". The fallback is labelled "example: Utrecht centrum". after
F4	**Major**	Navigation offered **Google Maps only**. iPhone users expect Apple	P1F5 obs	The main button opens Apple Maps on Apple

#	Sev	Finding	Evidence	Fix
		Maps; many Dutch drivers use Waze (P1F5).		devices and Google elsewhere. "Open in: Google Maps · Apple Kaarten/Maps · Waze" row added. after
F5	**Major**	No way to **share** a place. The URL also didn't identify the selected place (P1F6, P2F5).	P1F6 obs	"Delen/Share" button: native share sheet, or copies the link. Links now carry `a=<id>` and reopen that card.
F6	Minor	P+R isn't explained to visitors (P2F4).	P2F4 obs	P+R explanation in the card (NL/EN).
F7	Minor	API limits inconsistent: docs and OpenAPI said 20/min, terms and actual limit are 30/min + 500/day (P3F1).	P3F1 obs	Docs and OpenAPI now say 30/min + 500/day (anon), 600/min + 50k/day (key).
F8	Minor	Landmarks (Ziggo Dome) only get the "Search '...'" row, not a normal suggestion.	shot	Not fixed (OSM Nominatim forbids autocomplete). Enter/Go and that row both work.
F9	Minor	Free street zones still carry "prijs mogelijk gewijzigd". That's true (stale RDW data), but it confuses users when the price is €0.	P1F3 obs	Not fixed; consider hiding it when the stay falls entirely in free hours.
F10	Minor	REST `name` is the raw RDW name (e.g. "T12B_U04 WS Van Baerle"); only `spoken_summary` is cleaned.	P3F2 obs	Not fixed; add a `display_name` field.
F11	Minor	Legal pages are drafts (labelled). A business buyer needs final terms.	shot	Lawyer review (open).

Recommendations

1. Keep the phone sheet "list-first": one summary row for *when*, one row of filters, then results. Pickers only open on demand (done).
2. Treat "location denied" as a first-class state with a clear next step (done). Next: suggest recent searches.
3. Make every result shareable and navigable in the user's own app (done).
4. Explain Dutch parking concepts inline for visitors: P+R, blue zone (parking disc), "vergunninghouders" (done for P+R; blue zone open).
5. For business buyers: consistent limits (done), a clean `display_name`, final legal terms, and a status/SLA page.
6. Validate with 5 real users per segment (commuters in Den Haag/Delft, event visitors, one fleet PM) before GA.

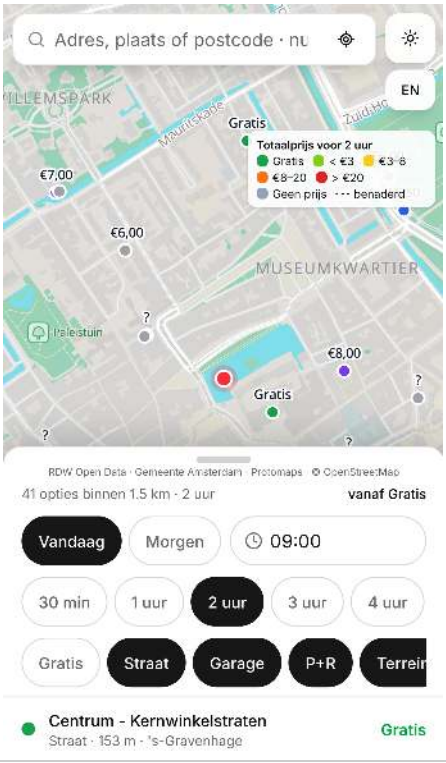
After: fixes deployed and the same flows re-run on production

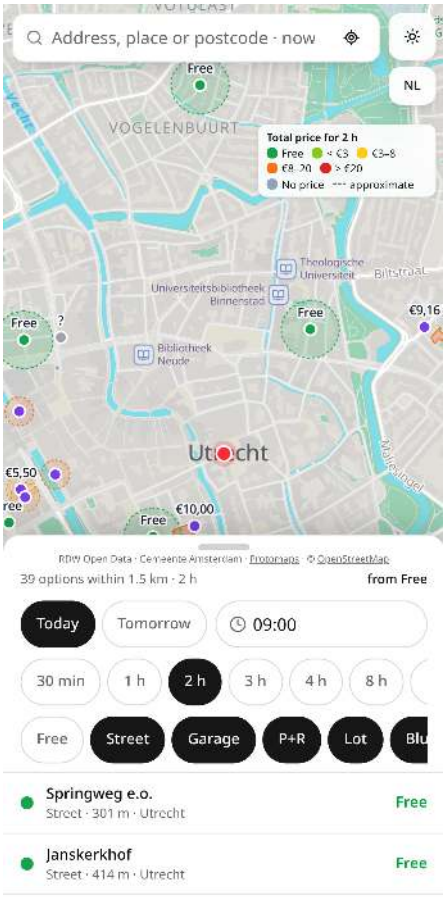
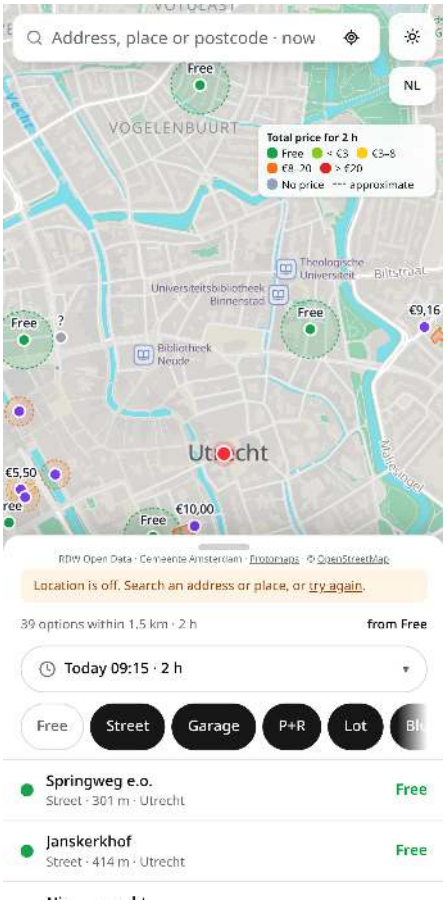
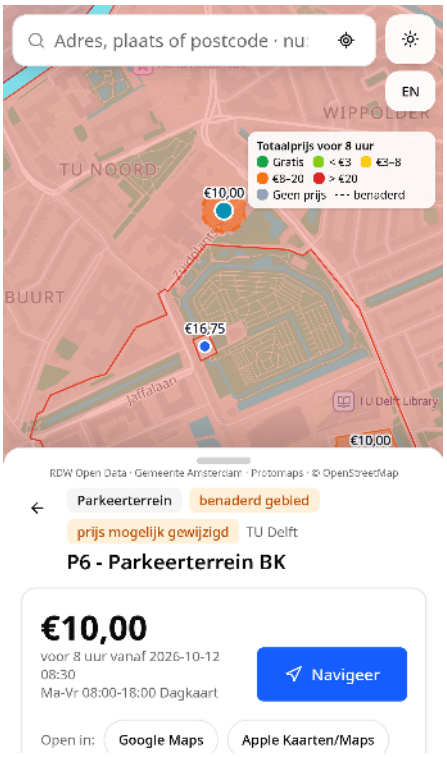
All 17 flows re-ran unchanged against production after the deploy. The only test change was tapping the new "when" summary button before using the pickers.

Success rate **14/17 → 17/17** (P1 Sanne 3/6 → 6/6). Off-screen swipes needed in P1F4: 2 → 1. See the table above for per-flow taps and times.

Synthetic SUS-style estimates (before → after): P1 Sanne 58 → **79**, P2 Tom 66 → **80**, P3 Priya 80 → **83** (synthetic, not measured).

Before / after evidence:

	Before	After
Phone sheet: list visible under the controls (P1)		

	Before	After
Location denied (P2)		
Tariff card for tomorrow 08:30, 8 h, with nav options (P1F4)		

Remaining items

- F8: landmark autocomplete (needs a POI index that allows autocomplete, e.g. a self-hosted OSM POI table).
- F9: hide "price may have changed" when the stay is entirely in free hours.
- F10: `display_name` in the REST/MCP output.
- F11: lawyer review of the legal pages; P+R-style explainer for blue zones.

- Real-user validation (this report is synthetic).