Parking Generation:
From Field Count to Better Data

What parking generation is • Why the update matters • How to collect a clean count

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What is parking generation?

Parking generation is the observed number of vehicles parked at a specific type of land use at a specific time.

LAND USE

What is here?
School
Restaurant
Hotel

TIME

When did we count?
Day
Hour
Season

DEMAND

How many spaces were occupied?

It is observed data — not a parking requirement.

Practitioners use the Parking Generation Manual as one source of evidence when estimating parking demand for different land uses.

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How one count becomes useful data



No single site is “the answer.” The value comes from many clean, comparable observations. So, the more data, the better the output.

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Why does it matter?

RIGHT-SIZE PARKING

Better evidence helps communities avoid planning from assumptions alone.

DEVELOPMENT REVIEW

Parking-demand information helps evaluate proposed development.

SHARED PARKING

Hourly patterns show when different land uses use parking differently.

BETTER DECISIONS

Current observations create a stronger basis for planning and design.

The quality of the estimate can only be as good as the observations underneath it.

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The current Parking Generation update

What we're trying to improve

- Add more observations
- Strengthen land uses with very few studies
- Reduce reliance on older data
- Improve coverage of today's development patterns
- Prepare the next Parking Generation Manual

2026–2027 workflow



Field collection is one piece of a broader effort that also includes voluntary submissions and data partnerships.

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What are you actually collecting?

A parking snapshot.

At each assigned site, record how many designated parking spaces are occupied during each required observation period.

COUNT

Occupied marked parking spaces

SEPARATE

One total for each site

REPEAT

Same process for every hourly observation

Site Selection

Choosing a good site • Critical Land Use Codes • Prep for Count Day

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Your First Job: Find a Good Site

Not every parking lot produces usable Parking Generation data.

1 WHAT IS IT?

Can you confidently identify the land use?

2 CLEAR BOUNDARIES?

Can you tell which spaces serve that land use?

3 CAN YOU COUNT IT?

Can you safely observe the entire parking area?

ALL THREE NEED TO BE YES.

A PERFECT COUNT AT A BAD SITE IS STILL BAD DATA.

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Step 1: Start With the Land Use

Choose the land use first. Then find a site that actually fits it.

START WITH ITE'S ELIGIBLE LAND USE LIST

↓

Pick a land use your chapter can reasonably find nearby

↓

Find potential locations

↓

Confirm the site actually matches the land-use definition

DON'T START WITH:
"There's a Chick-fil-A near campus. Let's count it."

START WITH:
"We need [LUC]. What nearby sites fit that definition?"

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Step 2: Does the Site Actually Match?

The business name isn't enough. Look at how the site actually operates.

- Does it match the description for the selected LUC?
- Is it primarily one land use, rather than several uses combined?
- Does it have the characteristics required for that LUC?
- Can you collect the required independent variable?
- Is anything unusual happening that makes it a poor example?

LOOKS LIKE…	BUT CHECK…
Fast-food restaurant	Drive-through or no drive-through?
Hotel	Standard, all-suites, resort, etc.?
School	Elementary, middle or high school?
Medical office	Medical office, urgent care or hospital?
Retail	Standalone store or shopping center?

WHEN IN DOUBT, DON'T GUESS THE LUC. ASK ITE BEFORE YOU COUNT.

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Step 3: Can You Isolate the Parking?

One land use → one defensible parking area

✓ GOOD SITE

- Standalone building
- Clearly defined lot
- Parking obviously serves that use
- Entire lot is visible/countable

? CHECK WITH ITE

- Some shared parking
- Adjacent businesses
- Unclear property line
- Overflow parking
- A few uncertain spaces

× FIND ANOTHER SITE

- Large shared shopping-center lot
- Mixed-use building + common parking
- Scattered/unidentified parking
- Cannot tell which vehicles belong to the use

The question is not "Can we count cars here?" It is "Can this count be attributed to this land use?"

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Would You Count It?

SCENARIO

Shopping Area

There is a large shopping center to the left but it shares parking with adjacent individual and smaller shopping plaza sites making it impossible to delineate.

X NO — BAD SITE



WHY IT DOESN'T WORKS

- The lot serves multiple land uses.
- You cannot tell which parked vehicles belong to which land use.
- The lot boundaries are unclear.

Counting the whole lot would measure the shopping center — not the individual business.

Being able to count the parking does not mean ITE can use the data.

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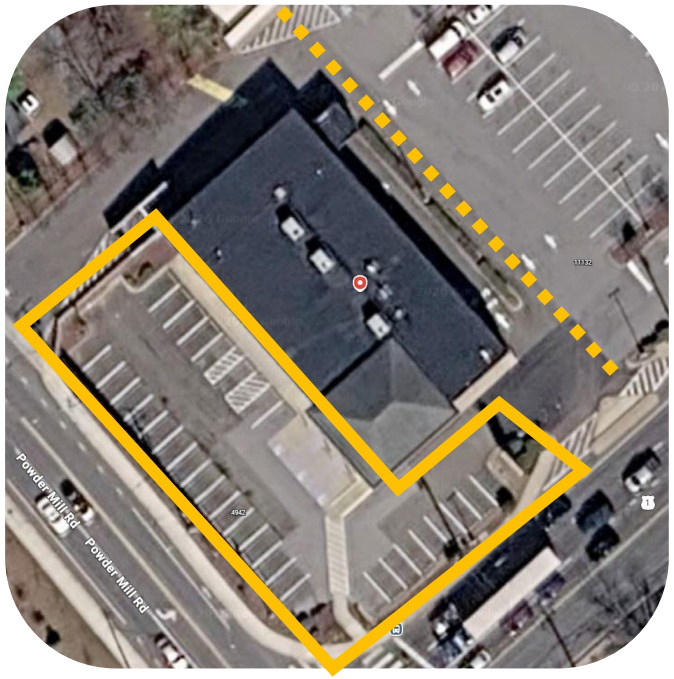
Would You Count It?

SCENARIO

Pharmacy

The pharmacy sits on its own parcel, but its lot connects directly to an adjacent retail lot with little to no physical barrier between them. In this example, a drive thru lane and small median separate the two.

MAYBE



Investigate

- Is there a clear property or parking boundary?
- Are spaces designated for the land use?
- Could customers reasonably park in either lot?
- Can you defend which spaces you included and excluded?

Connected lots aren't the problem. Unclear parking attribution is.

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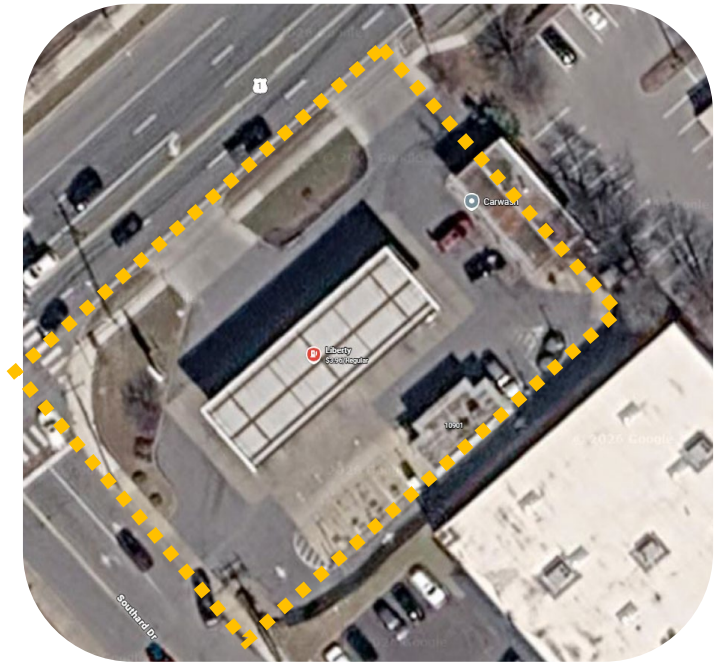
Would You Count It?

SCENARIO

Gas Station

The gas station has its own clearly defined lot. The parking serves only this land use code, and the entire lot can be safely observed.

✓ YES — GOOD SITE



WHY IT WORKS

- The land use is easy to identify.
- The parking belongs to one land use.
- The lot boundaries are clear.
- The entire parking supply can be counted.
- The required site information can be documented.

LOOK FOR: one identifiable land use + one defensible parking area.

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Step 4: Determine the Observation Period

Count when parking demand is expected to peak — not just when it is convenient.

1 FIND THE PEAK PERIOD

Use the peak period provided for your Land Use Code.

2 BUILD THE WINDOW

Choose observation hours that cover the peak and the surrounding period.

3 COUNT HOURLY

Take one complete parking snapshot during each required hourly observation.

4 USE THE RIGHT DAY

Follow the weekday, weekend, or other day guidance for that land use.

EXAMPLE:
PEAK PARKING DEMAND = 12–2 PM

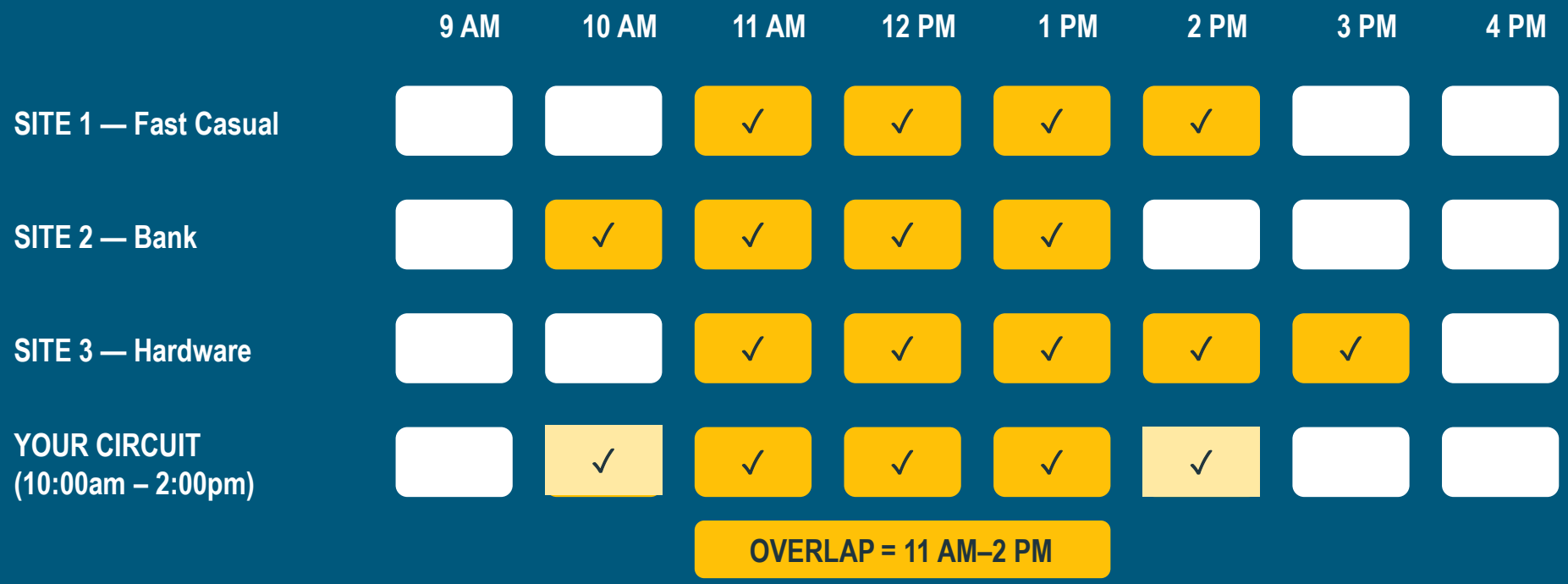


YOUR COUNT PERIOD = 11:00am – 3:00pm

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Multi-Site Counts: Find the overlap in times

If you bundle nearby sites, their required observation periods need to work together.



BUILD SMART PACKAGES Nearby + overlapping hours + a route you can finish within one hour.

Don't force a site into a daytime package just because it's nearby. Follow the observation period for that LUC.

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Step 5: Screen the Site Before Count Day

A little homework can save hours of unusable field work.

ONLINE

- Confirm the site name + address
- Review satellite / aerial imagery
- Look for lot boundaries and shared parking
- Confirm the land use
- Identify every parking area you will count
- Determine how you'll obtain the independent variable

IF NEEDED: QUICK SITE CHECK

- Can you access the parking area?
- Can you see and count all of it?
- Are the boundaries clear in person?
- Is the site operating normally?
- Is there anything you couldn't tell from the aerial?

TEN MINUTES OF SCREENING CAN SAVE YOUR CHAPTER HOURS OF COLLECTING UNUSABLE DATA.

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How to Capture Counts

What to count • What NOT to count • How to work in groups

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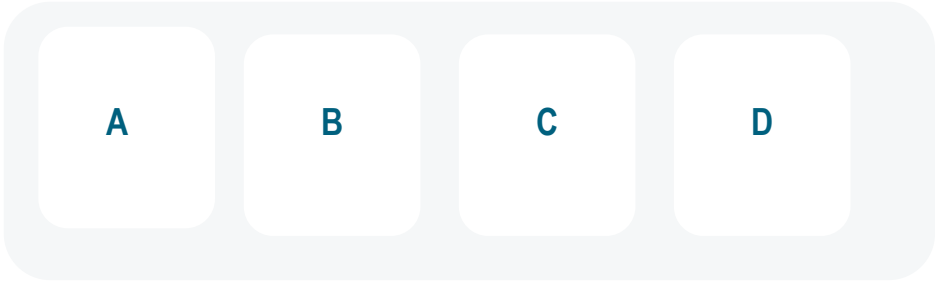
Two Ways to Tackle Your Counts

Work as a team — choose the approach that makes sense for the sites you find.

OPTION 1

ONE LARGE SITE

Split the parking area among your team and create one complete snapshot together.



A + B + C + D → ONE SITE TOTAL

Best for a large school, big-box store, hotel, or other site that is easier to divide than count alone.

OPTION 2

A PACKAGE OF NEARBY SITES

Choose several qualifying sites close together and complete the same circuit each hour.



START → COUNT → MOVE → RETURN BEFORE THE NEXT HOUR

Best when several qualifying sites are clustered nearby and the full route can be completed within one hour.

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Either way: every site needs a complete, separate occupancy count for every required observation period.

Single-Site: One Complete Snapshot Every Hour

For one large site, the goal is one complete parking snapshot at the top of every hour.

IF YOU'RE WORKING AS A GROUP

AREA A	AREA B	AREA C
AREA D	AREA E	AREA F

↓ ADD ↓

ONE COMPLETE SITE TOTAL

Begin the next snapshot at the next :00.

ONE SITE • ONE COMPLETE SNAPSHOT • EVERY HOUR | Start together; avoid gaps and double-counting.

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Example: Counting One Large Site

Target — 10301 New Guinea Rd | LUC 813 — Free-Standing Discount Superstore



AT EACH OBSERVATION HOUR

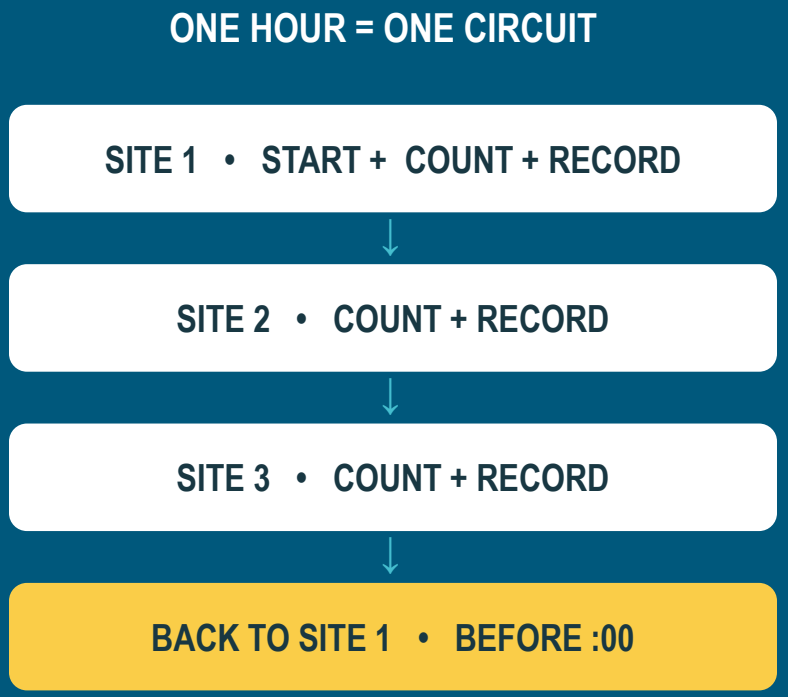
1. **Divide the lot**
   Assign the full count area so every portion is counted once — and only once.
2. **Start together**
   Everyone begins within the same 5-minute window at the top of the hour.
3. **Count occupied spaces**
   Count occupied marked spaces, including occupied Drive Up spaces.
4. **Combine subtotals**
   A + B + C + D + E + F = **ONE** Target occupancy count.
5. **Repeat**
   Do the same complete snapshot at the top of every required hour.

THE GOAL IS NOT SIX COUNTS. IT IS ONE COMPLETE SNAPSHOT OF TARGET'S PARKING OCCUPANCY.

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Multi-Site Packages: Complete One Circuit Every Hour

For packages with multiple sites, each hour is one complete circuit. Repeat the same circuit for every hour in your packet.



EVERY SITE • EVERY HOUR • SAME ROUTE | If you can't finish the route in one hour, skip the last site and head back to Site 1.

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Example: Counting a Multi-Site Package

NTB + Mobil + McDonald's | Three separate sites • One repeated hourly circuit



Count each property separately. Repeat the same route from Site 1 every hour.

AT EACH OBSERVATION HOUR

1. **Start at Site 1**
   Begin the NTB count as close to :00 as possible.
2. **Follow the route**
   Move to Mobil, then McDonalds. Count each site once.
3. **Keep totals separate**
   Record one total for NTB, one for McDonald's and one for Mobil.
4. **Return to Site 1**
   Finish with enough time to get back to NTB before the next hour.
5. **Repeat**
   At the next :00, begin the same circuit again for every required hour.

THREE SITES = THREE SEPARATE COUNTS EACH HOUR. COMPLETE THE FULL CIRCUIT, THEN START AGAIN AT :00.

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The counting rules that matter most

COUNT ✓

- Vehicles occupying normal designated parking spaces
- Customer, employee, resident or visitor spaces when applicable
- Marked pickup / Drive Up / EV spaces when a vehicle is actually parked there
- The entire designated parking area — once and completely every hour

DO NOT COUNT ✕

- Vehicles actively entering, exiting or driving through
- Drive-through, fuel-pump or pickup queues
- Temporary standing, active loading or drop-off activity
- Service bays, staged inventory, buses or other exclusions listed in your site instructions

Field safety + if a Karen approaches

YOUR SAFETY COMES FIRST

- Stay in publicly accessible parking areas. Do not enter gated, restricted or employee-only areas.
- Stay out of travel lanes and watch for backing vehicles, drive-through traffic and loading activity.
- Do not photograph people, license plates or anything you do not need for the parking count.
- If a location feels unsafe or someone asks you to leave, leave. Do not argue or try to finish the count.
- Note what happened and let ITE know so the site can be reviewed or replaced.
- High visibility vests are highly recommended.

IF SOMEONE ASKS WHAT YOU'RE DOING

"We're helping the Institute of Transportation Engineers collect parking data for an update to the Parking Generation Manual. We're just counting how many parking spaces are occupied at different times. We're not collecting information about individual vehicles or people."

IF THEY ASK YOU TO STOP OR LEAVE

"Absolutely — no problem. We'll leave."
Stop counting, leave the property and note that the count could not be completed.

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What Happens After

Where does the data go • How do you get that sweet moolah

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What happens after you submit?

1. **REVIEW** — Is the site, land use and count complete?
2. **QUALITY CHECK** — Are the boundary and exclusions defensible?
3. **STANDARDIZE** — Format the observation for the database.
4. **ANALYZE** — Combine it with comparable studies.
5. **USE** — Bring the improved dataset into the update.

Your observation becomes evidence—not just an exercise or a task.

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Turn Parking Counts Into $500 for Your Chapter

Complete qualifying, usable site submissions → earn money for your student chapter.

1 FIND

Select qualifying sites from ITE's eligible land-use list.

2 CHECK

Make sure each site meets the site-selection requirements.

3 COUNT

Complete the required observations + site information.

4 SUBMIT

Send ITE the completed spreadsheet and documentation.

10 ACCEPTED SITES = $500 FOR YOUR CHAPTER

QUALITY COUNTS. Payment is based on accepted, usable sites — not simply sites attempted. If a site or submission does not qualify, it may need to be corrected or replaced.

What Counts as One Site?

1 SITE = 1 LOCATION/1 DAY

✓ YES

3 DIFFERENT SITES

- Target — Tuesday
- High School — Wednesday
- Gas Station — Thursday

= 3 sites toward your chapter total

× NO

STILL ONLY 1 SITE

- Target — Tuesday
- Target — Wednesday
- Target — Thursday

= 1 site toward your chapter total

You may not return to the same location on another day and count it again as a new site.

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Questions before you head into the field?

Project Contact: Caitlin Cook, ccook@ite.org

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