

Backyard Putting Greens in Aurora: Performance & Ball-Roll Analysis

Stimpmeter physics, course-speed benchmarks, construction factors and a ten-year cost-per-use model for the home practice green

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ABSTRACT

This report reviews the published evidence on backyard putting-green performance for Aurora homeowners: how ball roll is measured, what green-speed numbers mean, which construction choices set speed, how long Aurora's climate keeps a synthetic green playable, and what a home practice surface costs per use over ten years. Every figure comes from published sources — the USGA stimpmeter reference literature, GTA installer cost guides that price putting-green work specifically, Aurora's 2026 water rate and watering by-law, Environment and Climate Change Canada climate normals for the Toronto/Buttonville A station located roughly ten kilometres south of the town, and the 2021 Census profile — with modelling assumptions stated where they are used.

We find that a backyard green built at the mid-point of the published GTA putting-green range of **\$20–35/sq ft** lands at **\$8,250 for a 300 sq ft reference project**; that Aurora's climate supports a modelled **24-week practice season**; and that at three 45-minute sessions a week the ten-year cost works out to roughly **\$13 per practice session**. We also report a gap in the record: no independently measured stimpmeter rating is published for the residential products reviewed, so a post-install reading is the buyer's only verification tool.

KEY FINDINGS AT A GLANCE

\$20–35/sq ft

published GTA putting-green installed range, with shaping, cups and fringe

9–11 ft

typical residential stimp target, adjustable via infill and brushing

24 wks

modelled Aurora practice season, May–mid-October (stated assumption)

≈\$13

ten-year cost per 45-min practice session, 300 sq ft reference green

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1 Ball roll and the stimpmeter: what the numbers mean

Green speed is measured with a stimpmeter, a simple 36-inch aluminum bar with a V-shaped groove that turns ball roll into a single number. A ball set in a notch 30 inches from the tapered end is released down a roughly 20-degree incline and enters the surface at a repeatable **6.00 ft/s (1.83 m/s)**; the distance it rolls out, in feet, is the green's speed — its "stimp" reading [1]. Because the release speed is fixed by the device, the rollout distance isolates the surface itself: its firmness, smoothness and the friction of the playing layer.

A proper reading averages three balls rolled in each of two opposite directions on a flat section, cancelling the effects of slope and grain [1]. The instrument dates to 1935, when Edward Stimpson devised it; the USGA issued an aluminum redesign in 1976, and the current third-generation device appeared in 2013 [1]. Nine decades on, it remains the accepted way to state, in a single number, how fast a ball rolls. The method is surface-agnostic — it measures rollout, not grass — so it applies as readily to a synthetic backyard green as to a bentgrass course, a comparability that underpins this report.

2 Backyard green speeds vs course speeds

The USGA's published bands anchor everyday club greens at 8 ft (slow), 10 ft (medium) and 12 ft (fast); U.S. Open setups run 10–14 ft, and the fastest championship green on record, Oakmont, reaches roughly 15 ft [1]. Table 1 sets out the ladder.

Table 1 — USGA green-speed bands and the fastest recorded championship example. *Source: [1].*

Playing context	Band	Stimp reading (ft)
Everyday club play	Slow	8.0
Everyday club play	Medium	10.0
Everyday club play	Fast	12.0
U.S. Open	Slow	10.0
U.S. Open	Medium	12.0
U.S. Open	Fast	14.0
Championship maximum (Oakmont)	—	≈15.0

Backyard synthetic greens typically target 9–11 ft, the published installer range for residential practice surfaces, adjustable via infill amount and brushing [2][3]. The USGA itself cautions that faster is not always better — roughly 10–11 ft is a practical residential sweet spot [1]. Where the Aurora-specific record is thin, this report says so plainly: none of the products in the GTA pricing basis reviewed here carries an independently published stimp rating. Speed on a synthetic green is set at installation (Section 3), and the workable approach is contractual: name a target band in the quote — the USGA club-medium band is 10 ft — and ask for a stimpmeter reading at handover to confirm it.

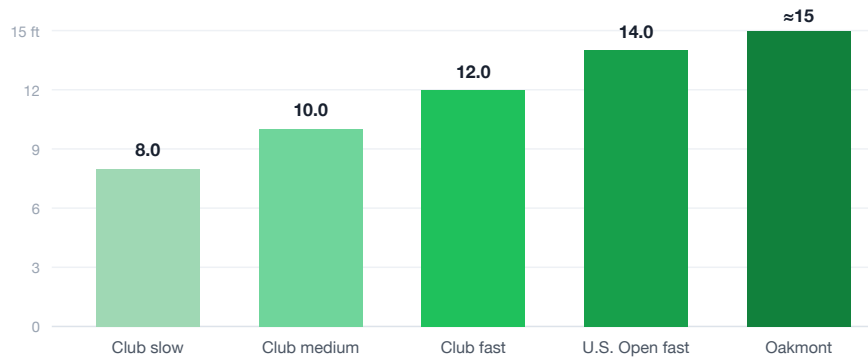


Figure 1 — USGA green-speed ladder in stimpmeter feet, from a slow club green (8 ft) to the fastest recorded championship setup (Oakmont, ≈15 ft). *Source: [1].*

3 Construction factors that set speed

A synthetic green's roll is engineered rather than grown, and published price schedules show where the engineering sits. A GTA-wide guide prices putting-green installation at \$20–35/sq ft, the premium end of the residential market, explicitly covering shaping, cups, fringe and premium golf turf [4]. A York Region-serving installer publishes landscape pricing from \$9.90/sq ft for larger projects [5], and a second GTA guide puts the premium landscape tier at \$19–25+/sq ft fully installed [6].

Table 2 — The priced layers of a green build, GTA published figures. *Sources: [4][5][6].*

Build component	Published figure	Source basis
Putting-green installation, full scope	\$20–35/sq ft	Shaping, cups, fringe, premium turf
York Region landscape turf (800+ sq ft tier)	\$9.90/sq ft	Volume-discount residential pricing
GTA premium landscape tier (context)	\$19–25+/sq ft	GTA-wide guide, fully installed
Putting-green pile height	8–18 mm	8–12 mm fast; 13–18 mm slower
Stitch density	58,800–79,800/m ²	Prevents wobbly ball roll

Pile height, stitch density and infill are the three speed-setting variables on the surface itself. Published guidance calls for 8–18 mm pile (3/8 to 3/4 in), with 8–12 mm delivering the fast true roll that mimics professional greens and 13–18 mm slowing the surface for casual play and chipping [2]. Stitch densities in the 58,800–79,800/m² range prevent a wobbly ball roll [3]. Silica-sand infill, applied at published rates, further tunes speed: more infill slows the surface, less speeds it [3].

4 Aurora's playing season: climate and playable days

Aurora sits roughly ten kilometres north of the Toronto/Buttonville A climate station, whose 1991–2020 Canadian Climate Normals describe the town's four-season practice environment [7]: a July average high of 27.3°C against a January average low of –10.1°C, with **862.4 mm of annual precipitation** split between 728.9 mm of rain and 146.4 cm of snow.

A synthetic green needs no growth, so its playable window is set by snow and ice rather than turf health. This report models a **24-week practice season**, May through mid-October — the standard southern-Ontario lawn-growing window, used here as a labelled assumption — roughly 168 playable days a year. Winter's 146.4 cm of snowfall effectively closes outdoor practice for the balance. Within the season, rain is handled by the engineered base rather than by a living plant; this report counts all 168 days as playable and treats rain closure as negligible for a well-drained build — itself a stated assumption (§M).

Aurora's housing context amplifies the home-green's appeal. The 2021 census counted 62,057 residents in 21,506 households [8], with 60.4% single-detached homes and 81.2% owner-occupancy [9]; the average detached home was approximately \$1.68M in November 2025 [10]. Growth is pushing onto former golf-course land — developers have proposed 180 single-family homes on 50–60 ft lots on the former Highland Gate Golf Club [11] — a market where backyards measured in hundreds of square feet, and a culture where the game is familiar, size the typical project.

The season also coincides with Aurora's watering rules. From May 15 to September 30, By-law 4420-03.E confines outdoor watering to alternate days — odd-numbered addresses on odd days, even-numbered on even — and to two windows, 6–10 a.m. and 6–10 p.m. [12]. A natural-grass practice green kept at putting height would need summer irrigation that this regime strains to deliver, and the water that is used is billed at Aurora's 2026 combined rate of **\$6.06/m³**, water and wastewater together [12]. A synthetic surface is indifferent to both constraints.

LOCAL CONTEXT — AURORA BY-LAW 4420-03.E IN BRIEF

Odd-numbered addresses water outdoors only on odd-numbered days, even-numbered on even days, May 15–September 30; permitted windows are 6–10 a.m. and 6–10 p.m.; newly laid sod or seed earns a one-month grace period [12]. A synthetic practice green never needs the window, the exemption, or the water.

5 Practice value and cost per use

The reference project for this report is a **300 sq ft practice green** — a stated assumption, smaller than the 400–700 sq ft backyard projects the GTA guide calls typical [6] — at the mid-point of the published GTA putting-green range, \$27.50/sq ft: **\$8,250 installed** [4]. Adding \$100/yr of upkeep (rinse, brushing, infill attention — assumption) gives a ten-year cost of **\$9,250**. Against the Section 4 use model — three 45-minute sessions a week over the 24-week season, 72 sessions or 54 hours a year — that is 720 sessions and 540 hours across the decade: about **\$12.85 per session, \$17.13 per hour** (Table 3). Figure 2 shows the per-hour cost falling from roughly \$155 after year one to about \$17 by year ten.

Table 3 — Ten-year cost-per-use model, 300 sq ft Aurora practice green. (A) = stated assumption (\$M). Price from [4]; use model from §4.

Item	Basis	Ten-year value
Installed cost	300 sq ft (A) × \$27.50/sq ft, GTA mid-point	\$8,250
Upkeep	\$100/yr (A): rinse, brush, infill attention	\$1,000
Ten-year cost	—	\$9,250
Practice sessions	3/week × 24 weeks (A)	720
Practice hours	45 min per session	540
Cost per session / per hour	\$9,250 ÷ 720 / \$9,250 ÷ 540	\$12.85 / \$17.13



Figure 2 — Cumulative cost per practice hour at successive ownership milestones, 300 sq ft green at 54 hours of use per year. Derived; price from [4], assumptions in §M.

The model cuts both ways. At half the use — 36 sessions a year — the cost per session roughly doubles to \$26: a green that is not played is a garden ornament. This report collected no published driving-range or green-fee pricing, so no dollar comparison with off-site practice is offered; what the home surface returns is access — roughly 540 hours of practice a decade, steps from the back door.

M Methodology & data sources

This is a desk-research report. Figures were collected in August 2026 from the published sources listed under References: the USGA stimpmeter reference literature (device mechanics, speed bands, history); GTA installer cost guides covering putting-green and landscape-turf pricing; Environment and Climate Change Canada's 1991–2020 Canadian Climate Normals for Toronto/Buttonville A; the Town of Aurora's 2026 water-billing insert and By-law 4420-03.E; the Town's community profile and Wikipedia's Aurora article for census counts; Point2Homes for tenure and dwelling-type breakdowns; CondoMonk for detached-home pricing; and local development-coverage reporting on the Highland Gate proposal.

Stated assumptions (not sourced facts): (i) practice season — 24 weeks, May to mid-October, the standard southern-Ontario growing-season guideline, used as a conservative playable window with rain closure treated as negligible; (ii) reference green — 300 sq ft; (iii) installed price — \$27.50/sq ft, the mid-point of the published GTA putting-green range of \$20–35/sq ft [4]; (iv) use — three 45-minute sessions per week in season (72 sessions, 54 hours per year); (v) upkeep — \$100/yr; (vi) prices held flat in nominal dollars over ten years. Derived figures combine these assumptions with the cited published rates; changing any assumption changes the result, and Section 5 shows the sensitivity to use.

Limitations

No stimpmeter measurements were taken for this report, and no residential product reviewed carries an independently published speed rating; USGA bands describe course greens, not specifications of synthetic products. Prices are published planning figures, not quotations; actual quotes vary with site conditions, base preparation and access. Climate normals are 30-year averages, not forecasts, and the playable-day model is illustrative. No driving-range or green-fee data was collected, so off-site practice is not monetized. Ten-year figures are undiscounted nominal dollars. This report is not a site assessment, an engineering review, or an endorsement of any specific product.

R References

1. Wikipedia — Stimp meter (device mechanics, USGA green-speed bands, history). https://en.wikipedia.org/wiki/Stimp_meter (accessed August 2026).
2. NJ Artificial Grass Pros — Ideal pile height for artificial grass putting greens (8–18 mm; 8–12 mm fast, 13–18 mm slower). <https://newjerseyartificialgrasspros.com/the-ideal-pile-height-for-artificial-grass-putting-greens/> (accessed August 2026).
3. AGL Grass — Best artificial putting green turf (stitch density 58,800–79,800; infill tuning; backyard 9–11 ft stimp). <https://aglgrass.com/blogs/best-artificial-putting-green-turf/> (accessed August 2026).
4. Design Turf — Artificial grass cost in Toronto (2026 guide; putting greens \$20–35/sq ft installed). <https://designturf.ca/artificial-grass-cost-in-toronto/> (accessed August 2026).
5. Perfect Yard Landscape — Artificial turf installation Toronto & GTA (York Region/Newmarket pricing tiers \$9.90–14.90/sq ft). <https://perfectyardlandscape.com/artificial-turf-installation> (accessed August 2026).
6. Toronto Turf Pros — Artificial grass cost in Toronto (2026 guide; premium tier \$19–25+/sq ft). <https://torontoturfpros.ca/blog/artificial-grass-cost-toronto/> (accessed August 2026).
7. Environment and Climate Change Canada — Canadian Climate Normals 1991–2020, Toronto Buttonville A (climate ID 6158409). https://climate.weather.gc.ca/climate_normals/results_1991_2020_e.html?searchType=stnName&txtStationName=buttonville&searchMethod=contains&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&climate_id=6158409&dispBack=0 (accessed August 2026).
8. Town of Aurora — Community Profile and Site Selection Information (2021 census: 62,057 residents; 2016: 55,445). <https://www.aurora.ca/business-and-development/community-profile-and-site-selection-information/> (accessed August 2026).
9. Point2Homes — Aurora, ON Demographics (2021 census profile: 60.4% single-detached, 81.2% owner-occupied). <http://www.point2homes.com/CA/Demographics/ON/Aurora-Demographics.html> (accessed August 2026).
10. CondoMonk — Aurora pre-construction market data (average detached ≈\$1.68M, November 2025). <https://condomonk.ca/aurora> (accessed August 2026).
11. YorkRegion.com — Developers plan homes with 50-foot lots on Aurora's former Highland Gate Golf Club. https://www.yorkregion.com/news/developers-plan-homes-with-50-foot-lots-on-auroras-former-highland-golf-club/article_08995468-b730-5c3c-84b8-f6fd82b1967c.html (accessed August 2026).
12. Town of Aurora — By-law Number 4420-03.E (odd/even watering, 6–10 am & 6–10 pm, May 15–Sep 30) and 2026 Water Billing Information (\$6.06/m³ combined, effective May 1, 2026). <https://records.aurora.ca/WebLink/edoc/15380/By-law%20-%20Water%20Use%20-%2020030325%20-%20442003E.pdf?dbid=0&repo=Public>; https://www.aurora.ca/media/taeblcz0/2026_water_billing_insert_final.pdf (accessed August 2026).

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