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NAIROBI CITY TWIN / DEMOGRAPHICS

Demographics

Domain Guide

Start with age, location and household context, then inspect the resident references that connect the wider city.

City	Nairobi
Coverage	Public sample available
List price	$8,995 USD - standalone domain
Guide edition	Striped Donkey V5.89 - 7 September 2026

Use this guide

Read the documented coverage and limitations alongside the published sample and release evidence. Model counts and sample distributions describe their stated source and period. The final accepted order specifies licensed scope, usage rights, duration and delivery.

Useful questions

- Compare age bands and residence status
- Inspect population context by ward
- Check the identity fields needed for a join

Scope and limitations

Evidence before modern census and survey systems is less granular than contemporary demographic evidence. Early-period population and cohort structure are reconstructed from aggregate historical evidence and calibrated trends rather than individual observations.

Some historical demographic parameters are available at national or broad regional level but not at city resolution for Nairobi specifically. Where city-level observations are unavailable, the release records the broader evidence source and applies a disclosed calibration rather than presenting it as a direct city observation.

Historical migration is inherently harder to observe than births and deaths, particularly across informal urban populations - modeled with a variable confidence band, not a fixed benchmark.

Aggregate realism does not imply that any individual synthetic citizen's exact life history occurred in reality - this is a model boundary, not a claim about any one record.

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01 How Demographics fits the City Twin.

FCTE reconstructs a synthetic population through time - births, deaths, age, sex, migration, origin and other demographic characteristics - creating the citizens that every connected domain builds upon.

These aren't independent demographic records. The same synthetic citizens continue into households, education, employment, health, housing, transport and the rest of the city.

Nairobi City Twin™ · 1940-2026

02 Known and possible relationships.

Connections follow the published domain scope. Optional, contextual and planned relationships retain their stated limits below.

Domain or context	Relationship and published scope
Households	Citizen membership connects residents to household roles and family transitions.
Education, Health and Employment	The same synthetic resident identity supplies age, lifespan and location context to these domains.
Housing and Land	Households can be followed into housing and location context where the relevant references are supplied.
Business and Vehicles	Resident ownership context can be inspected where an owner reference is present. Private vehicle ownership and transport journeys are separate models.
Insurance	Coverage and claim activity can be analysed alongside the resident lifecycle.

Supporting links

Households

Civil Registration

Education

Employment

Health

Business

Insurance

Housing

Land

Vehicles

03 From population structure to individual life histories

Demographics establishes who exists in the synthetic city, when they entered the population, how population composition changes through time, and when citizens leave through death or migration.

Age, sex, birth cohort and population structure - 5.1M+ living and recorded citizens across Nairobi.

Birth histories and historically calibrated fertility behavior, linked to a real mother wherever one can be traced.

Deaths, age-specific mortality and historical mortality patterns, including a cumulative-hazard model for elderly citizens.

Population movement, migration timing, origin and demographic effects - In, Out and Internal movement types.

How citizens enter the synthetic population: historical descent, marriage, birth descent, general naturalization and pregnancy.

Demographic conditions evolve across decades - from a 1940s colonial-era baseline to the present - rather than applying today's structure retrospectively.

Synthetic by design: FCTE citizens do not correspond to real people. Demographic characteristics are generated from aggregate evidence, calibrated distributions and documented modeling rules.

04 Citizens have histories, not just attributes

A conventional synthetic population often represents a single snapshot. FCTE preserves demographic events and dates so citizens can participate in the evolving City Twin™ - real Household Lifecycle events (Departure, Marriage, Divorce, Widowhood, Remarriage) run against the same dated citizen record used everywhere else.

Demographics isn't merely upstream at initial generation. It remains relevant throughout the citizen's life.

05 Today's city wasn't generated in 1940

FCTE reconstructs population change across historical periods rather than applying a contemporary demographic distribution to every generation. Nairobi's own registration-event catalog is piecewise-weighted to its real civil-registration history, not spread evenly across the timeline.

colonial-era trickle - a small, slow-growing share of registration events, before Kenya had any independent civil registration system.

independence surge, anchored to the real Kenya ID Act of 1967.

rapid urbanisation and sustained urban migration into Nairobi.

the digital era begins with an eCitizen pilot, interrupted by a real, modeled dip around the 2007-2008 post-election violence period.

digital acceleration and Kenya's devolution wave.

Nairobi: a modeled 2020-2022 slowdown consistent with COVID-era disruption, followed by high-volume current registrations through 2026.

Historical coverage and evidence strength vary by metric and period. FCTE records those differences rather than treating every historical year as equally observed.

Explore Demographic Evidence →

Supporting links

Explore Demographic Evidence →

06 Evidence becomes citizens

FCTE combines jurisdiction-specific demographic evidence with repeatable generation rules. Historical parameters determine population structure and change while bounded modeling fills gaps where direct observations do not exist.

Directly supported by published demographic evidence - UN World Population Prospects rates, KNBS census totals.

Calculated from observed statistics, e.g. crude birth/death rates computed against the living population.

Population growth, age structure, fertility, mortality and migration behavior are calibrated to cited demographic evidence and release-level checks. Exact weights, coefficients and thresholds remain controlled.

Individual synthetic assignments are generated under controlled domain rules. Exact sampling, assignment order and parameterization are not published.

View Generation Methodology →

Supporting links

View Generation Methodology →

07 Grounded against the population we know

National censuses, population estimates and official statistical publications.

Birth rates, fertility surveys and demographic estimates - crude birth rate calibrated to a 20-40 per 1,000 band.

Life expectancy, mortality rates, death statistics and international demographic series - crude death rate calibrated to a 3-15 per 1,000 band.

Census migration measures, urban growth evidence and historical population studies.

National demographic/household surveys used where population structure intersects household formation - mean household size calibrated to a 1.5-7.0 band.

Open Demographics Source Catalogue →

Supporting links

Open Demographics Source Catalogue →

08 From 5.1 million citizens to one record

View Complete Data Dictionary →

Three rows from the same 100-row, 54-field public Demographics sample available in Data Explorer and the CSV download. The sample is synthetic and age-stratified; no row represents a real individual.

Explore all 100 sample rows →

Entity	Represents
Citizen	Persistent synthetic citizen - DOB, Gender, National, Ward, RegistrationDate, ResidencyStatus
Birth	Civil birth registration - one row per citizen, linked to MotherCitizen where traceable
Death	Civil death registration - one row per citizen, with CauseCategory
CitizenOrigin	How a citizen entered the population - HistoricalDescent, Marriage, Descent, Naturalization or Pregnancy
Migration	Population movement - In / Out / Internal, with origin and destination ward
Household / HouseholdMember	Citizen's household context, including join/leave dates and relationship role

Entity	Represents
PopulationSnapshot	Periodic ward-level population aggregates used for calibration

Table columns 1, 2, 3, 4, 5 (first column repeated)

Citizen ID	Age band	Sex	Ethnic group	Ward
2545925	20-24	M	Kisii	Kahawa West
4760612	35-39	M	Turkana	Eastleigh North
202036	25-29	M	Kamba	workflow

Table columns 1, 6, 7 (first column repeated)

Citizen ID	Residency	Lifecycle
2545925	Resident	Living resident
4760612	Diaspora	Diaspora
202036	Resident	Deceased

Supporting links

View Complete Data Dictionary →

Explore all 100 sample rows →

09 Does the generated population look like the city?

Release distributions from the current Nairobi City Twin™ - one public reality check, not a disclosure of the internal construction details.

Age bands in years, grouped in 10-year bands (80+ combined). Counts are living + deceased citizens by recorded date of birth.

Births and deaths grouped by decade, 1920s-2020s. Bars share one scale per city so the two series are directly comparable.

Every decade nets positive in Nairobi - consistent with certification check (population growth direction), which requires the younger half of the population to outnumber the older half.

Open Full Realism Report →

Supporting links

Open Full Realism Report →

10 Does the model actually feel history - or just grow smoothly?

Nairobi's birth-cohort size is computed two ways - a smooth baseline from pure population-curve interpolation, and a version modulated only by historical events with a documented fertility mechanism - then checked against what the data environment actually contains today. Charted from the platform's population growth model, its historical event calendar, and real generated-citizen birth-year counts, Nairobi.

Event registry

Open Full Population Pulse Dashboard →

See also: Event Ablation - each fertility-relevant historical event removed one at a time and re-tested against demographic survey benchmarks →

Supporting links

Open Full Population Pulse Dashboard →

Event Ablation - each fertility-relevant historical event removed one at a time and re-tested against demographic survey benchmarks →

11 5.1 million citizens. Every one still has to make sense.

Every release is checked against the full certification check-C21 structural battery, plus a separate 8-check realism pass (certification check-R08) - both run live against the current Nairobi release City Twin™.

A separate realism-adjacent audit (certification check/certification check) additionally checks that ward-level calibration inputs actually predict their own realized outputs, and is reported independently of the checks above.

Explore Every Demographics Check →

- certification check - Every citizen has a valid demographic identity
- certification check - household-member identity resolves to a real citizen
- certification check - No duplicate NationalId values
- certification check - Exactly one current household membership per citizen
- certification check - Death cannot precede birth
- certification check - Household membership cannot start before a citizen's own DOB
- certification check - Migration cannot precede a citizen's own DOB
- certification check - A citizen's household transitions never overlap
- certification check - Sex ratio stays within a 95-112 males-per-100-females band
- certification check / R03 - Crude birth and death rates stay within sourced UN WPP bands
- certification check - Population skews toward the younger half (growth direction)
- certification check - Mean household size stays within a 1.5-7.0 band
- certification check / C13 - Household head resolves to a valid current member
- certification check - Elderly mortality regression guard (≥15% of the 80+ cohort marked dead)

• certification check / C19 - Household role and dissolution coherence after lifecycle events

Supporting links

Explore Every Demographics Check →

12 Historical confidence isn't uniform

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View All Demographic Limitations →

Supporting links

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13 The population model evolves with the evidence

View Full Demographics Change Log →

Supporting links

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14 The population every other domain builds on.

Demographics is the spine underneath Households, Health, Employment and Transport - every synthetic citizen's age, birth cohort, migration and mortality history lives here first, before it shows up anywhere else in the City Twin™.

Available as Standalone Domain · Multi-Domain Bundle · Full City Twin™

Supporting links

See Households →

See Employment →

View All Domains →

Review licensing & delivery details →

View Pricing & Licensing →

Browse Demographics Data →

Explore Multi-Domain Access →