# Bus Operations: Costing and Fare Proposal

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Operating cost and fare model for the Cyberabad Bus Loops network. All figures are approximations for planning and need confirming through tenders and a ridership survey.

## Summary

With a fare of ₹10 per bus, capped at ₹20 per journey, the electric bus network covers its operating cost once each bus carries about 850 paid journeys a day.

| | Approximate figure |
|---|---|
| Fare | ₹10 each time you board a bus; no journey costs more than ₹20 within 60 minutes |
| Ticketing | One tap when boarding, at a validator on the bus; no tap-out, no station gates |
| Fleet | 73 electric buses, 66 in service each day |
| Bus-km run | About 12,500 a day, 4.5 million a year |
| Operating cost | About ₹66.5 per km: ₹8.3 lakh a day, ₹30 crore a year |
| Non-fare income | About ₹8 per km: ₹1 lakh a day |
| Average fare | About ₹13 per journey, if 30% of journeys use two buses or more |
| Break-even | About 56,000 paid journeys a day, or 850 per bus |

The same fare applies to every rider; there are no concessions by age or gender. Roads, stations, depots and chargers are capital works funded outside the fare.

**The ask:** approve the fare, a per-km operating contract for electric buses, and capital funding of about ₹115 crore for depots, chargers, stations and the fare system.

# Fare model

One price per bus, one tap per bus, and a cap so that changing buses never costs more than ₹20.

Buses are an open system: riders get on and off at open platforms and footpaths, not through gates. Charging by distance would need every rider to tap out inside the bus on every trip, and missed tap-outs would lead to overcharges and disputes. Charging per boarding needs only the tap people already make when they get on.

| Rule | Detail |
|---|---|
| Boarding fare | ₹10 per bus |
| Journey cap | ₹20 within 60 minutes of the first tap: the second bus costs ₹10, the third and later buses are free |
| Daily cap | ₹40 |
| Monthly pass | ₹900 for unlimited rides, the same for everyone |
| Payment | Hyderabad Metro card, RuPay NCMC card or a QR ticket from the app; no cash on buses; top-ups at stations, kiosks and through UPI |
| How to tap | At a validator beside every door, when boarding only; all doors open at every stop |
| Checking | Roving inspectors with handheld readers; ₹500 penalty for riding without a valid tap |

### Typical fares

| Journey | Buses | Fare |
|---|---|---|
| Kondapur to a Gachibowli office | L1 | ₹10 |
| JNTU metro to Cyber Towers | C2 | ₹10 |
| Miyapur metro to Gachibowli | C1 | ₹10 |
| Chandanagar to Wipro Circle | C3 | ₹10 |
| Miyapur metro to the Financial District | C1, then L2 | ₹20 |

| Journey | Buses | Fare |
|---|---|---|
| Manikonda to Kondapur | L3, L2, then L1 | ₹20 (capped) |

**Why this price**

- **₹10 is the number people already know.** It matches the lowest metro and city bus fares and is below a shared auto.
- **The cap protects the network design.** The loops and corridors rely on transfers; nobody pays more than ₹20 however many buses they take.
- **Long single-bus rides are the one gap.** End-to-end trips on C1 and C3 pay ₹10. If tap data shows many of these, charge ₹15 to board a corridor bus and keep the ₹20 cap. Review after six months.
- **The monthly pass** works out to about ₹20 per commute journey, less than running a two-wheeler and more than the average single fare.

## Operating model

The city or TGSRTC sets routes, timetables and fares and keeps all fare income. A private operator supplies and runs the electric buses and is paid a fixed rate per km.

- **Per-km operating contract (gross cost contract).** The operator provides buses, drivers, charging, maintenance and depot operations for 10–12 years and is paid per km run. Payment is cut for missed trips, late running, breakdowns and poor cleanliness. Because the operator earns nothing from fares, it has no reason to race, skip stops or crowd buses.
- **Driver-only buses.** No conductors; riders tap a validator when boarding and roving inspectors check fares, as on Dubai's buses.
- **12 m air-conditioned electric buses** on the busy loops and corridors; 9 m buses can serve the quieter routes later to cut cost.
- **Two depots with overnight charging,** one near Gachibowli–Nanakramguda and one near Miyapur–Chandanagar, plus fast chargers at two route ends for daytime top-ups.
- **A control room** that tracks every bus live, holds or adds buses to keep gaps even, and publishes live arrivals to the app and Google Maps.
- **Peak-heavy timetable.** Buses every 5–8 minutes from 7–11 am and 5–9 pm, every 10–12 minutes at other times, which keeps daily km near 190 per bus.

# Operating cost

A 12 m electric bus costs about ₹66.5 per km to run, all in. The bus itself (bought and financed over 12 years) and the driver make up more than half of that.

| Cost item | ₹ per km | Basis (approximate) |
|---|---|---|
| Bus and battery, financed over 12 years | 23 | About ₹1.4 crore per bus with financing, over about 70,000 km a year |
| Drivers | 13 | About 2.6 drivers per bus to cover two shifts and leave, at about ₹30,000 a month each |
| Electricity | 10 | About 1.2 kWh per km at about ₹8 per kWh |
| Maintenance and tyres | 5 | Electric buses need far less maintenance than diesel |
| Insurance, depot operations, operator overhead and margin | 8 | |
| **Paid to the operator** | **59** | In line with recent Indian electric-bus contracts |
| Fare system: on-bus validators, handheld readers, card settlement | 2 | Cheaper than gated stations |
| Ticket inspectors and station attendants | 3 | More inspectors, fewer station staff than a gated system |
| Control room, live tracking, planning | 1.5 | |
| Station cleaning, power and upkeep | 1 | |
| **City's own costs** | **7.5** | |
| **Total operating cost** | **66.5** | |

**By phase** (about 190 km per bus per day, 360 days a year)

| Phase | Routes | Buses (in service) | Bus-km a day | Cost a day (₹ lakh) | Cost a year (₹ crore) |
|---|---|---|---|---|---|
| 1 | L1, L2 | 20 (18) | 3,420 | 2.3 | 8.2 |
| 2 | L3, C1, C2, C3 | 40 (36) | 6,840 | 4.5 | 16.4 |
| 3 | W | 13 (12) | 2,280 | 1.5 | 5.5 |
| **Full network** | | **73 (66)** | **12,540** | **8.3** | **30.0** |

## Revenue and break-even

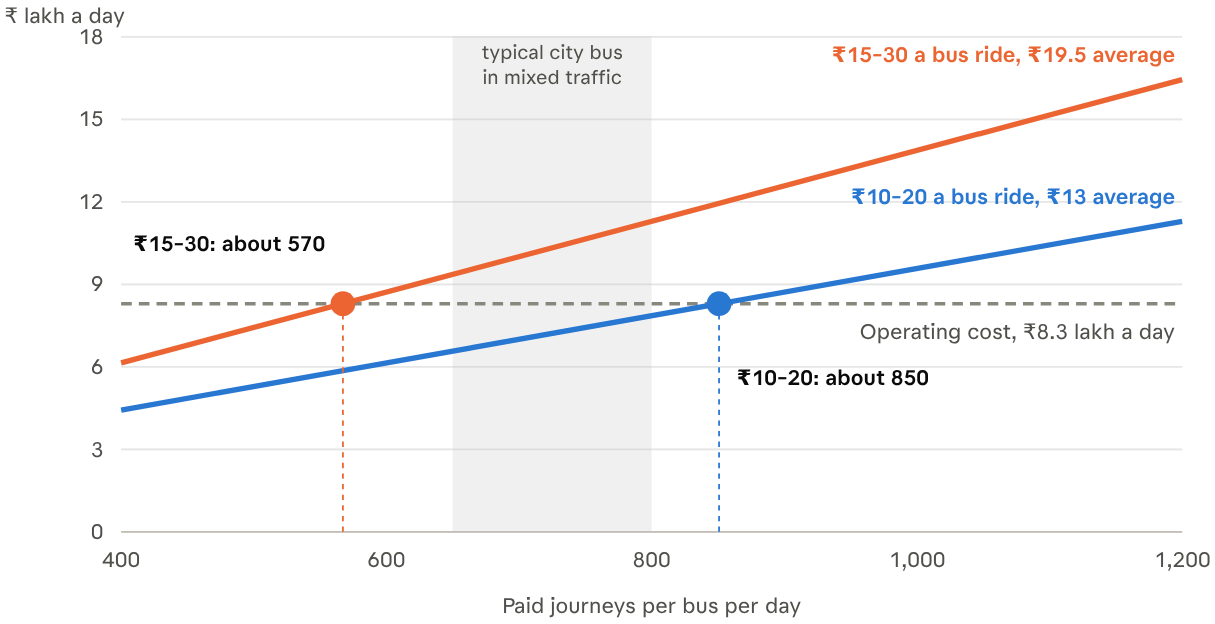
At an average of about ₹13 per journey, the full network breaks even at about 850 paid journeys per bus per day. Each extra 100 journeys per bus adds about ₹86,000 a day, or ₹3 crore a year.

**How the average fare is worked out:** if 70% of journeys use one bus (₹10) and 30% use two or more (₹20, capped), the average is ₹13 per journey. If only 20% change buses, it falls to ₹12 and break-even rises to about 920 journeys per bus.

**Non-fare income, about ₹8 per km (₹1 lakh a day):** advertising on stations and buses, kiosk rents at stations, naming rights for busy stations, and a share of new parking charges along the corridors.

**₹15–30 breaks even at about 570 paid journeys per bus a day, ₹10–20 at about 850**

Daily income against daily operating cost, 66 buses in service, 30% of journeys using two buses, ₹1 lakh a day non-fare income
At ₹15–30, expect 15–20% fewer journeys than at ₹10–20 for the same demand




approximate planning figures · full network, 66 buses in service

**Scenarios for the full network** (66 buses in service, cost ₹8.3 lakh a day)

| Scenario | Paid journeys per bus per day | Journeys a day | Cost covered | Result a year |
|---|---|---|---|---|
| Low | 600 | 39,600 | 74% | Shortfall of about ₹8 crore |
| Break-even | 850 | 56,100 | 100% | Even |
| High | 1,100 | 72,600 | 126% | Surplus of about ₹8 crore |

For comparison, Bengaluru and Delhi city buses carry roughly 650–800 passengers per bus per day in mixed traffic. Dedicated lanes, short loops and dense office demand should let this network do better. Plan for the low scenario in year one, while ridership builds.

# Fare options evaluated: ₹10–20 and ₹15–30

**₹10–20 needs about 850 paid journeys per bus a day to break even; ₹15–30 needs about 570, but costs riders half as much again and loses an estimated 15–20% of them.** Both options keep the same structure: a fare each time you board, a cap per journey within 60 minutes, a daily cap and a monthly pass. Both are kept here for decision.

| | Option A: ₹10–20 | Option B: ₹15–30 |
|---|---|---|
| Fare each time you board | ₹10 | ₹15 |
| Most for one journey (60 minutes) | ₹20 | ₹30 |
| Daily cap | ₹40 | ₹60 |
| Monthly pass | ₹900 | ₹1,350 |
| Average fare per journey (30% use two buses) | ₹13 | ₹19.50 |
| Break-even, paid journeys per bus a day | about 850 | about 570 |
| Break-even, paid journeys a day, whole network | about 56,000 | about 37,000 |
| Bus fares for a daily commuter, one bus each way | ₹440 a month | ₹660 a month |
| Bus fares for a daily commuter, two buses each way | ₹880 a month | ₹1,320 a month |

Option B's caps and pass are scaled by the same 1.5 times as its boarding fare. Commuter figures assume 22 working days and pay-as-you-go; a rider who pays more than the pass buys the pass.

**Yearly result at three levels of demand** (66 buses in service, ₹8.3 lakh a day to run, ₹1 lakh a day from ads and station rents). Demand is the number of journeys people would make at Option A's fare; Option B assumes 15–20% fewer, from a typical city-bus fare elasticity of about −0.3 to −0.4.

| Demand at Option A fares, journeys per bus a day | Option A: journeys | Option A: surplus or deficit a year | Option B: journeys | Option B: surplus or deficit a year |
|---|---|---|---|---|
| Low: 600 | 600 | −₹8 crore | 480–510 | −₹3 to −₹4 crore |

| Demand at Option A fares, journeys per bus a day | Option A: journeys | Option A: surplus or deficit a year | Option B: journeys | Option B: surplus or deficit a year |
|---|---|---|---|---|
| Expected: 850 | 850 | about break-even | 680–720 | +₹5 to +₹7 crore |
| Strong: 1,100 | 1,100 | +₹8 crore | 880–935 | +₹15 to +₹17 crore |

**What Option A (₹10–20) offers**

- **Fits the rider target.** Bus fares of ₹440–900 a month leave room for the last mile and the metro within ₹3,000.
- **More riders.** About 8,500–11,000 more journeys a day at expected demand than Option B, so fewer cars and two-wheelers on the road.
- **Cheap transfers.** A second bus costs ₹10, which the loop-and-corridor network depends on.
- **The risk:** it breaks even only at expected demand. A slow first year could run a deficit of up to ₹8 crore.

**What Option B (₹15–30) offers**

- **Breaks even early.** It covers costs at about 570 paid journeys per bus, which it reaches once demand is about 670–710 journeys per bus at Option A fares, a fifth below the expected level.
- **Room to grow.** A surplus of ₹5–7 crore a year at expected demand could fund more buses or lower fares later.
- **The cost to riders:** ₹660–1,320 a month on buses alone. With the last mile and the metro, many riders would pass ₹3,000.
- **The cost to the plan:** 15–20% fewer riders, and a costlier second bus, work against people giving up their two-wheelers.

**What decides it.** Option A suits a city willing to fund a first-year deficit of up to ₹8 crore to build ridership. Option B suits a city that needs the buses to pay for themselves from the start. A middle path is to open at Option A and move to ₹15 per boarding on the corridors only, the fallback already set out under Risks, if six months of tap data show the deficit is not closing.

All figures are planning approximations. The ridership drop under Option B is an estimate from typical fare elasticities, not a survey of Cyberabad riders.

## Capital costs outside the fare

The buses come through the per-km contract, so the city buys no buses up front. Depots, chargers, stations and the fare system need about ₹115 crore of capital, funded as infrastructure, not from fares. Open platforms without gates keep station and fare-system costs down.

| Item | Quantity | Rough cost (₹ crore) |
|---|---|---|
| Depots with overnight charging, about 40 buses each | 2 | 40 |
| Fast chargers at route ends | 4 | 6 |
| Median stations: open platform, shade roof, arrival screens | About 90 | 45 |
| Kerbside stops on the West feeder | About 20 | 3 |
| Fare system: on-bus validators, handheld readers, back office, app | Network | 8 |
| Control room and live tracking | 1 | 3 |
| Contingency, about 10% | | 10 |
| **Total** | | **About 115** |

Bus lanes, kerbs and the walk-and-scoot edges are counted in the street budgets of the Implementation Plan and the sidewalk guides, not here.

**Possible sources:** state and GHMC capital budgets; central support for electric buses and charging under the PM e-Bus Sewa scheme (eligibility to confirm); land for depots from TGIIC or HMDA; station sponsorship by IT companies near their campuses.

## Risks, levers and next steps

Ridership is the deciding number. Costs are fairly predictable under a per-km contract; income is not, so the plan needs levers ready if ridership comes in low.

| Risk | Effect | Lever |
|---|---|---|
| Ridership builds slowly | Year one near the low scenario: about ₹8 crore shortfall | Start with the two busiest loops; employer pass drive before launch; budget the first-year gap |
| Fewer transfers than expected | Average fare nearer ₹12; break-even rises to about 920 per bus | Charge ₹15 to board a corridor bus, keeping the ₹20 cap |
| Long single-bus rides on C1 and C3 | Riders travel 8–12 km for ₹10 | Same lever: ₹15 corridor boarding, decided on six months of tap data |
| Fare evasion with open boarding | Lost income | Validator at every door, roving inspectors, ₹500 penalty; target under 5% evasion |
| Electricity tariff rises | Each ₹1 per kWh adds about ₹1.2 per km | Fix an EV tariff with the power utility; solar on depot roofs |
| Buses run empty off-peak | Cost without income | Run every 10–12 minutes off-peak; use 9 m buses on quiet routes |
| Traffic slows buses | More buses needed for the same gap | Physically separated lanes, car-trap pits at lane entries, signal priority, and AI cameras that issue e-challans automatically |

### Each lever, in money terms (full network, approximate)

- 100 more paid journeys per bus per day: about ₹3 crore a year.
- Cutting 10% of daily km, all of it off-peak: about ₹3 crore a year saved.
- Non-fare income ₹2 per km higher: about ₹0.9 crore a year.
- 9 m buses on L3 and W (about ₹10 per km cheaper): about ₹1.3 crore a year saved.

### Next steps

1. **Ridership survey** with IT employers and on today's buses and shuttles, to firm up the 850-per-bus target and the share of journeys that change buses.
2. **Market check with electric-bus operators** for a per-km rate on 12 m and 9 m buses.

3. **Fare system specification** for tap-on boarding, the ₹20 journey cap and the daily cap, shared with the metro card.
4. **Employer pass agreements** with large campuses before Phase 1 opens.
5. **Board decision** on the fare, the contract model and the capital budget.