CAG
Citizen consumer and civic Action Group

SLOW DOWN!

An assessment of speeding concerns and their management in Chennai, Tamil Nadu.

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About CAG

CAG is a 36-year-old non-profit and non-political organisation that works towards protecting citizens' rights in consumer, civic and environmental issues and promoting good governance processes including transparency, accountability and participatory decision-making.

CAG has been working on road safety issues since 2015. We have conducted several training and awareness programmes for the general public in collaboration with various stakeholders including the relevant government agencies. CAG has created various IEC materials for building awareness among the public on road safety rules. CAG also regularly carries out research on road safety such as helmet and seatbelt compliance studies, the results of which are shared with enforcement agencies for their consideration.

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Executive summary

Speeding, viz. driving too fast for conditions (weather, traffic flow and visibility) or the behaviour of exceeding posted speed limits has far ranging consequences and is one of the significant factors contributing to road crashes (fatal and non-fatal). Speed limits have been one of the commonly used strategies to regulate driving speeds and protect all road users. In Tamil Nadu, though the enforcement in terms of curbing speed is being driven through legal punishments such as fines and temporary suspension of licences, the legislation on speed limits has been at a standstill since the government notification of 2003[1] with no revision till date by the State Transport Authority. Reviewing the speed legislation periodically, at a greater frequency is important especially in fast developing urban and sub-urban areas.[2] Although extensive analyses have been carried out with regards to speed and road safety on national and inter state highways, an acute lack of evidence-based studies is seen in examining urban and sub-urban arterials. This study is a first step towards bridging that data gap to enable more effective and well-informed speed management by governments. It examines the variations in speeding across selected vehicle categories in 15 major arterials in Chennai city. The methodology adopted includes spot speed surveys at selected mid-blocks of the arterials to record speeds of the selected vehicle categories. Speed characteristics and variations across different locations were calculated and compared under each vehicle category to enable an understanding of the existing speed trends. Further, qualitative analysis of visual factors influencing driver speeds such as lane configurations, sight distance, obstructions, controlled intersections, presence of medians, pedestrian infrastructure, electronic enforcement devices etc. was also conducted. The findings reveal a high driver non-compliance to the posted speed limits. The trend is similar across the different vehicle categories with contextual variations depending upon the road class and quality of existing infrastructure. The recommendations therefore emphasise the need to couple speed limits with supporting laws and speed policies, active enforcement strategies, public education, and reviewing the legislated process of formulating speed limits. The study also concludes that legislators should consult traffic engineers, policy makers, public health officials and all road users to come up with appropriate speed limits that places safety at the forefront and exhibits a judicious trade-off in terms of travel time and feasibility of enforcement.

[1] Refer Appendix 1; Retrieved from [https://www.cag.org.in/sites/default/files/database/RTI_Chennai_2021_Speed%20Limits.pdf]

[2] National Research Council (U.S.) Transportation Research Board, 1998. Managing Speed: Review of Current Practice for Setting and Enforcing Speed Limits, Special Report 254, Washington DC. Retrieved from [http://onlinepubs.trb.org/Onlinepubs/sr/sr254.pdf]

1 Background

Exceeding speed limits is one of the most dangerous traffic violations. Speeding lowers the time we have to react, therefore resulting in fatal crashes or serious injuries. Globally, there are several movements and campaigns promoting lower speeds i.e. 30 kmph within the urban limits. Various international organisations such as WHO, Bloomberg Philanthropies, the UN and their partners have been working with countries across the globe to enable improvements in reducing the rates of death and injuries due to road crashes. Proactive countries like the United Kingdom, Netherlands, Switzerland have adopted a comprehensive approach to road safety prioritising reduction of speed limits and creating an inclusive road environment that is safe for all road users. It's important that India strengthens its approach to road safety to effectively reduce the alarming number of road traffic deaths by advocating for lower speeds. As per the State Crime Records Bureau (SCRB) report of 2020, 98.57% of accidents in Tamil Nadu had taken place due to the driver's fault. The main reasons cited include speeding and aggressive driving. As a stringent step to reduce road crashes, the Supreme Court Committee on Road Safety, in 2015, directed the state to suspend the licence of drivers who commit any of these 6 major traffic violations - speeding, jumping red signal, overloading and carrying passengers in goods carriages, using mobile phones while driving, seat belt non-compliance, and drunk driving.[3] The suspension is temporary i.e., for a time period of three months and applies to first time offenders too. The onset of implementation of this directive in 2017 witnessed a massive suspension of licences[4] during the year out of which 11.2% of the suspensions were due to speeding.[5] Continued adherence to this directive by the state government was the reason for the suspension of 14057 driver licences in Tamil Nadu in 2020 according to the reports by the State Transport Department.[6]

Year	No. of licences suspended due to overspeeding in Tamil Nadu
2017	17615
2018	33263
2019	10151
2020	14057

Table 1: Licences suspended due to overspeeding over the years in Tamil Nadu.

[3]Notification - Directions to States/UTs to implement road safety laws, 2015. Retrieved from [https://morth.nic.in/sites/default/files/Directions_to_States.pdf]

[4] Krishnan, S., Geetha, K., Basri, Rabiya., 2017. Road Accidents and Road Safety Measures in Tamil Nadu - An Analysis, Transport and Road Safety Commissioner, Chennai. Retrieved from [https://tnsta.gov.in/pdf/ra5.pdf]

[5]Government of Tamil Nadu Home (Transport) Department, 2019. Road Accident Analysis in Tamil Nadu, Transport and Road Safety Commissioner, Chennai. Retrieved from [https://tnsta.gov.in/pdf/analysis_jan2019.pdf]

[6] Government of Tamil Nadu Home (Transport) Department, 2020. Road Accident Analysis in Tamil Nadu, Transport and Road Safety Commissioner, Chennai. Retrieved from [https://www.tnsta.gov.in/pdf/analysis_december2019.pdf]

To further deter drivers from breaking speed limits and thereby bring about a behaviour change, effective law enforcement at different levels (centre, state and district level) should be used as a primary tool. To drive this change efficiently, enforcement should be coupled with a responsive road design. Condition and usage of roads should also be considered to formulate relevant speed limits and citizens should be educated on the acceptable speed.

Indian roads are characterised by mixed traffic. Therefore, evidence-based studies are necessary to highlight the speed variations of different types of road users in different road contexts and identify the risks associated with each. Based on the risks identified, context-based recommendations can be proposed to establish speed limits, place caution signage, and improve road markings to make roads safe and inclusive for all user groups.

Therefore, to gauge speeding concerns, spot speed surveys were conducted across 15 locations in Chennai city in Tamil Nadu. The study was also taken up as a part of the advocacy for low speeds, which is central to the theme of the World Day of Remembrance for Road Traffic Victims.

2 Aim and methodology

The study aimed to identify and understand the speed variations among the following selected vehicle categories under contextual conditions at 15 different locations in Chennai,

- 2-Wheelers (Categories L1 and L2 - A two-wheeler with a maximum speed of 45 km/hr and engine capacity of 50 cc; two-wheelers exceeding an engine capacity of 50 cc respectively)
- Four wheelers (cars)
- Autos/share autos
- LCV - Light Commercial Vehicle (pick-up trucks, minivans, other loaded three wheelers)

15 arterial stretches witnessing high volumes of daily incoming traffic were selected across the city based on connectivity to job centres and institutional areas. Other factors that were considered include physical conditions, road geometry, established speed limits, traffic patterns (four lane/two lane traffic, traffic regulated by medians etc.).

The selection was also mindful of the geographical spread in order to include a reasonable number of zones of the city corporation. A balanced mix of arterial roads that experience speeding issues at present and those that have not reported any such issues were jointly considered.

Based on the results, the posted speed[7] limits and the free speeds[8] were assessed in relation to the road's physical characteristics, existing speed management provisions and other infrastructural facilities.

2.1 Localities and arterial roads considered for the study

1) Grand Northern Trunk Road - The stretch between Madhavaram junction and Puzhal camp bus stop.
2) Grand Northern Trunk Road - The stretch between Padi bridge and 18th main road junction, Anna Nagar.
3) Anna Nagar - Third Avenue stretch leading to the Anna Nagar police station roundabout.
4) EVR Salai - The stretch between Anna Arch and Ega theatre junction.
5) Harrington Road - The stretch between Harrington Road subway and Dr.Guruswamy Bridge.
6) Choolaimedu High Road - The stretch between Arcot Road junction and Nelson Manickam Road.
7) Anna Salai - The stretch between Gemini flyover and Dams Road junction. (Teynampet area)
8) Wallajah road – The stretch between Pallavan Junction and Anna Salai.
9) Peters Road - The stretch from the flyover end to Crescent Hospital junction.
10) Anna Salai - The stretch between Thevar statue and Saidapet Bridge. (Nandanam area)
11) Adyar - Durgabai Deshmukh Road between the Thiru Vi Ka Bridge and Greenways Road signal.
12) The stretch from MRC Nagar towards Iyappan Koil, Greenways Road.
13) Mount Poonamallee High Road - The stretch from MGR flyover junction towards Nandambakkam.
14) Grand Southern Trunk Road - The stretch between Pallavaram flyover and Meenambakkam metro station.
15) ECR - Akkarai police speed check post towards Muttukadu.

[7] Posted speed - It refers to the maximum permissible speed on a particular road section or speed zone designated using a regulatory sign.
[8] Free speed - It means that drivers are not impeded by other vehicles and are assumed to be operating at their desired speed in the considered road environment.

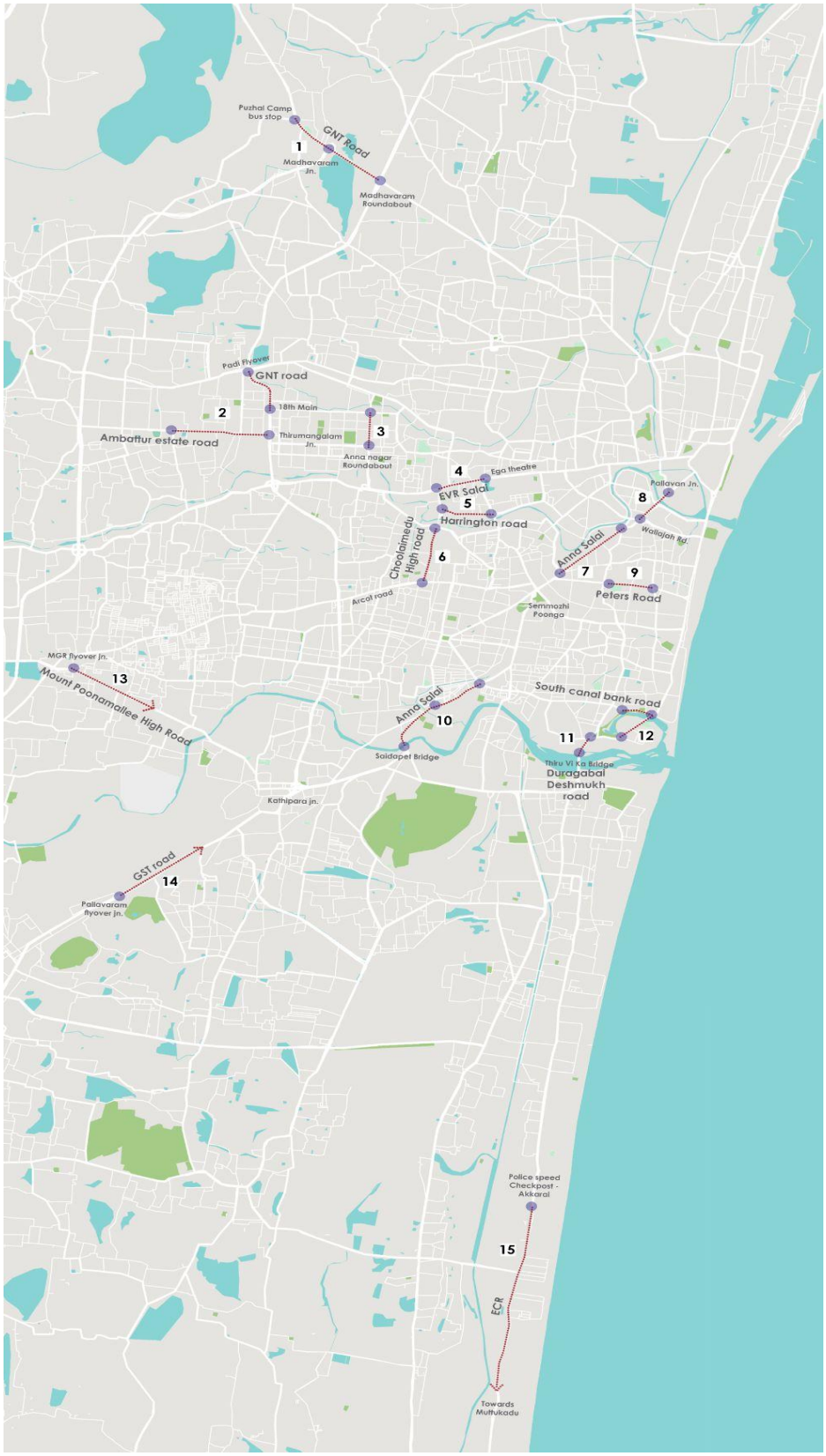

Figure 1: Geographical spread of survey locations

Prior to the survey, each of the 15 stretches selected were examined by the researcher to record parameters such as land use, traffic patterns, road width, pedestrian infrastructure (footpaths, pedestrian crossings), and other road markings, signage.

A speed gun that uses the radar meter method was employed for the study. The spot speed survey was conducted by two field personnel stationed in a selected mid-block of the road holding the speed gun at a minimum distance of 200 feet from the targeted vehicle. Care was taken to ensure that the selected midblock was free from speed breakers and precautionary signs so that accurate results with regards to the driver behaviour and natural speed is determined.

The study was limited to examining weekday traffic, and the surveys were conducted during off peak hours between 11 a.m. – 1 p.m and 3 p.m. to 5 p.m. Systematic random sampling was done and the speed reading for every third vehicle under each category was obtained. The sample size accounted for 50 under each vehicle category at every location.

The speed data collected was cleaned and box-plot graphs were generated to eliminate outliers. Speed characteristics such as mean/average, 15th percentile[9] and 85th percentile[10] were then calculated and the data sets were quantitatively compared across all the locations. These parameters were further used to gauge the speed trends of the selected vehicle categories in the surveyed locations.

2.2 Limitations

- The scope of the study did not include Medium and Heavy Commercial Vehicles (MCV and HCV), trailers, ambulances, vehicles used for industrial field operations and other private vehicles.

- The spot speed may vary due to environmental conditions, physical conditions such as road side developments, gradient, intersections, and travel intent.

[9] The 15th percentile is defined as " the minimum or critical speed limit at or below which 15 percent of all vehicles are observed to travel under free-flowing conditions past a monitored point."
[10] The 85th percentile is defined as "the speed at or below which 85 percent of all vehicles are observed to travel under free-flowing conditions past a monitored point."

3 Results and discussion

📷 **The arterial roads of Teynampet and Nandanam area** Photo: Road Safety | CAG

The following tables show that the Anna Salai arterial stretch witnesses consistent speeding by two-wheelers and cars across different mid-blocks in the neighbourhoods of Nandanam and Teynampet, with 85% of the two-wheelers travelling at/below a speed of 53 kmph and 66 kmph respectively. The arterial stretch of Nandanam despite witnessing heavy traffic flow on a daily basis also shows that speeding is a prevailing issue. The cars consistently exhibited speeding behaviour (compared to motor bikes) in the Teynampet area with 85% of them travelling at/ below a speed of 75 kmph. Despite the existing land use being predominantly institutional, the free speed of vehicles is dramatically higher than the designated speed limit of 40 kmph for cars and two-wheelers within city limits. The physical infrastructure of the stretch, which includes a greater carriage width with a median regulating the traffic, supports free flowing traffic during off-peak hours thus enabling a higher free speed range. The stretch also observes speeding by all users, irrespective of gender, which brings forth concerns regarding inclusive road safety and sensitization.

Location	Posted speed limit	Free speed range	15th percentile	50th percentile	85th percentile
Annanagar - GNT Rd.	40	34 - 59	36.75	44.43	50.5
Annanagar - 3rd Avenue	40	35 - 70	40.83	49	55.75
Greenways Rd	40	31 - 83	33.6	40	50.8
Anna Salai - Nandanam	40	31 - 65	33.5	42.4	53.5
Anna Salai - Teynampet	40	36 - 90	39.88	50.5	66.75
Durgabhai Deshmukh Rd.	40	25 - 61	34.83	39.67	48
ECR - Akkarai	80	34 - 90	45	57	75
EVR Salai - Pachaiyappas Metro	40	31 - 75	33.06	37.17	46.25
Harrington Rd	40	24 - 45	27.75	35	40.58
GNT Rd - Madhavaram	40	35 - 70	40.17	45.75	55.25
Meenambakkam	40	31 - 74	34.5	46.40	56
Nandambakam	40	37 - 90	39.625	49.33	65.5
Peters Rd.	40	31 - 49	32.75	36.75	42.5
Tank Bund Rd. - Choolaimedu	40	31 - 70	34.83	47.50	59.83
Wallajah Rd.	40	35 - 79	39.25	47.50	61.83

Table 2: Speed differences for two-wheelers across 15 locations in Chennai (in kmph)

Location	Posted speed limit	Free speed range	15th percentile	50th percentile	85th percentile
Annanagar - GNT Rd.	40	38 - 58	40.3	47.125	51.7
Annanagar - 3rd Avenue	40	39 - 84	41.59	48.17	55.65
Greenways Rd	40	25 - 58	33.375	38.17	44.5
Anna Salai - Nandanam	40	33 - 86	36.74	41.17	49.77
Anna Salai - Teynampet	40	40 - 84	45.5	58	75
Durgabhai Deshmukh Rd.	40	31 - 58	33.42	38.33	46.25
ECR - Akkarai	80	41 - 93	45.84	55.5	67.22
EVR Salai - Pachaiyappas Metro	40	32 - 69	33.68	38.75	47.22
Harrington Rd	40	23 - 46	27.17	31.71	40
GNT Rd - Madhavaram	40	38 - 84	41.27	46.75	55.43
Meenambakkam	40	32 - 79	38.23	47.17	56.83
Nandambakam	40	40 - 84	46	58.5	74.33
Peters Rd.	40	25 - 50	29.63	34.40	40.50
Tank Bund Rd. - Choolaimedu	40	30 - 59	34.08	39.00	50.5
Wallajah Rd.	40	34 - 75	39.25	48.00	57.75

Table 3: Speed differences for cars across 15 locations in Chennai (in kmph)

The arterial stretches of Meenambakkam and Madhavaram-GNT Road, which serve as major links to various job centres, witness similar patterns of speeding by both two-wheelers and cars accounting for an average speed of 46 kmph. The free speed of the two vehicle categories is identical and the stretches are therefore more vulnerable to road crash risks. The arterial stretch in Nandambakkam area, which also serves as a major link to job centres, exhibiting a predominantly commercial land use, witnesses speeding by two-wheelers and cars, with the 85th percentile values of the two vehicle categories at 65 and 74 kmph respectively. Since it is one of the major arterials spanning the city it is important to install signage and appropriate road markings to ensure adequate driver visibility. This will increase awareness on the existing speed limits and pave the way for reduced speed violations.

📷 **The arterial roads of Madhavaram and Nandambakkam area leading to job centres**
Photo: Road Safety | CAG

The mixed-use arterial roads of Anna Nagar, including GNT Road and Third Avenue; and the predominantly institutional Durgabhai Deshmukh Road of Adyar witness similar speeding trends. They account for 85% of the two-wheelers and cars travelling at/below a speed of 55 kmph. Wallajah Road, Tank Bund Road in Choolaimedu and Greenways Road with a predominantly institutional grain, functioning as important links across the city, also witness higher speeds of two-wheelers and cars ranging from 42 to 62 kmph.

📷 **Tank Bund road and Anna Nagar – GNT Road regularly witness speeding two-wheelers**
Photo: Road Safety | CAG

The arterial stretches of Peter's Road and Harrington Road observe speeding trends that are similar with 85% of all categories of the vehicles considered (two-wheelers, cars, autos/share-autos) travelling at a free speed of 40 kmph or below. This adheres to the posted limit of 40 kmph. In the case of Peter's Road, the existing institutional land use, presence of foot-over bridges and the narrowing carriage width towards Anna Salai are likely to have influenced the speed of different road users. Though the optimised carriage width is a common attribute of these two stretches, Harrington Road serves as a better example for inducing a behavioural change in motorists on adopting low speeds through improved pedestrian infrastructure viz. well-maintained footpaths, pedestrian crossings, appropriate road markings, school zone designation and other signage including speed limit warnings. A context-sensitive design of road infrastructure can have a positive impact on driver behaviour thereby reducing the risk of road crashes.

The arterial stretch along the East Coast Road in Akkarai is equipped with infrastructure for monitoring violations with respect to speed and other traffic violations through provision of ASES (Automatic Speed Enforcement System) Poles including 4D radar, speed tracker and Automatic Video Incident Detection System (AVIDS). The stretch witnesses relatively less speeding as the designated limit stands at 80 kmph owing to its connectivity to the State Highway 49. Though few outliers of two-wheelers speeding up to 90 kmph were seen, the Variable Message Sign Board (VMS), Vehicle Actuated Speed Sign (VASS), and the auto-generated challans have likely had a significant impact in reducing speeding in the stretch. Other cases of relatively lesser speeding concerns have been registered in EVR Salai in Chetpet where two-wheelers and cars were speeding up to 46 kmph. The explanation for

this observation could include the improved pedestrian infrastructure and the optimised carriage width that facilitates last mile connectivity around Pachaiyappa's Metro junction.

📷 **Speed monitoring mechanisms in ECR, Akkarai and Harrington Road**
Photo: Road Safety | CAG

Tables 3 and 4 below show that at all the selected 15 locations consistent speeding by autos/share autos is observed. The free speeds observed among 85% of the auto drivers range from 34 - 50 kmph which is an alarmingly high range when compared to the posted limit of 25 kmph. LCVs also exhibit high speeding in most of the locations with negligible differences when compared to the free speeds of other vehicle categories. Though this might suit moving traffic and reduce road conflicts across different vehicle categories, other road users such as pedestrians and cyclists are at an increased risk of a crash particularly in a mixed road traffic scenario as ours. The risk is also a function of the vehicle's operating load as other physical observations in arterial stretches of Nandambakkam, GNT road - Madhavaram and Anna Salai - Teynampet area, point towards the overloading concerns of LCVs that influence the driver's speeding patterns and the risks associated with it. This calls for increased monitoring within city limits in terms of overloading of vehicles and driver behaviour in terms of speeding.

Location	Posted speed limit	Free speed range	15th percentile	50th percentile	85th percentile
Annanagar - GNT Rd.	25	32 - 59	35.17	39.33	45.5
Annanagar - 3rd Avenue	25	34 - 61	37.38	43	48.88
Greenways Rd	25	27 - 43	32	35.25	38.7
Anna Salai - Nandanam	25	31 - 49	33.5	37.5	44.5
Anna Salai - Teynampet	25	32 - 56	36.75	42	49.5
Durgabhai Deshmukh Rd.	25	25 - 43	31.36	35	38.92
ECR - Akkarai	80	22 - 57	32.5	41.5	49.1
EVR Salai - Pachaiyappas Metro	25	26 - 51	31.10	35.25	41.5
Harrington Rd	25	22 - 46	32.75	30.33	34.5
GNT Rd - Madhavaram	25	34 - 61	36.75	42.5	48.63
Meenambakkam	25	30 - 56	32.75	39.5	47.25
Nandambakam	25	32 - 56	36.75	42.25	49.17
Peters Rd.	25	25 - 52	29.25	34.57	39.83
Tank Bund Rd. - Choolaimedu	25	25 - 45	31.5	35	41
Wallajah Rd.	25	27 - 50	33.5	39.20	45.88

Table 4: Speed differences for autos/share-autos across 15 locations in Chennai (in kmph)

Location	Posted speed limit	Free speed range	15th percentile	50th percentile	85th percentile
Annanagar - GNT Rd.	40	27 - 53	31.42	35.33	40.75
Annanagar - 3rd Avenue	40	32 - 72	35.5	42.25	53
Greenways Rd	40	26 - 49	32.17	37.14	40.38
Anna Salai - Nandanam	40	26 - 46	30.63	35.50	40.17
Anna Salai - Teynampet	40	31 - 67	39.25	47.67	56.5
Durgabhai Deshmukh Rd.	40	26 - 42	29.00	33.00	38.25
ECR - Akkarai	80	32 - 77	40.25	47	60.17
EVR Salai - Pachaiyappas Metro	40	28 - 59	31.06	34.13	40.65
Harrington Rd	40	NA	NA	NA	NA
GNT Rd - Madhavaram	40	32 - 72	35.35	42.50	51.3
Meenambakkam	40	32 - 60	36.5	43	49.25
Nandambakam	40	31 - 67	39.5	47.50	56.5
Peters Rd.	40	27 - 52	29.3	34.5	42.5
Tank Bund Rd. - Choolaimedu	40	28 - 47	31.625	34.83	41.5
Wallajah Rd.	40	25 - 52	30.25	38.00	44.67

Table 5: Speed differences for LCVs across 15 locations in Chennai (in kmph)

4 Conclusion

To sum up, speeding concerns seem to be widespread within the city limits in Chennai and need to be addressed. Key takeaways from the analysis include:

- The two-wheelers assessed were found travelling within the speed range of 35 - 75 kmph
- The cars assessed were found travelling within the speed range of 38 - 74 kmph
- Autos assessed in the study did not adhere to speed limits within city limits and were found travelling at an average operating speed of 43 kmph and a maximum operating speed of 59 kmph
- LCVs contribute to speeding with an added concern of vehicle load with an average operating speed of 46 kmph and a maximum operating speed of 60 kmph
- Physical factors that influence speeding often include lack of adequate facilitation through well-maintained infrastructure such as foot paths, appropriate road markings, placement of signage and an optimised carriage width. These constitute the existing gaps as identified in most of the arterial stretches surveyed.

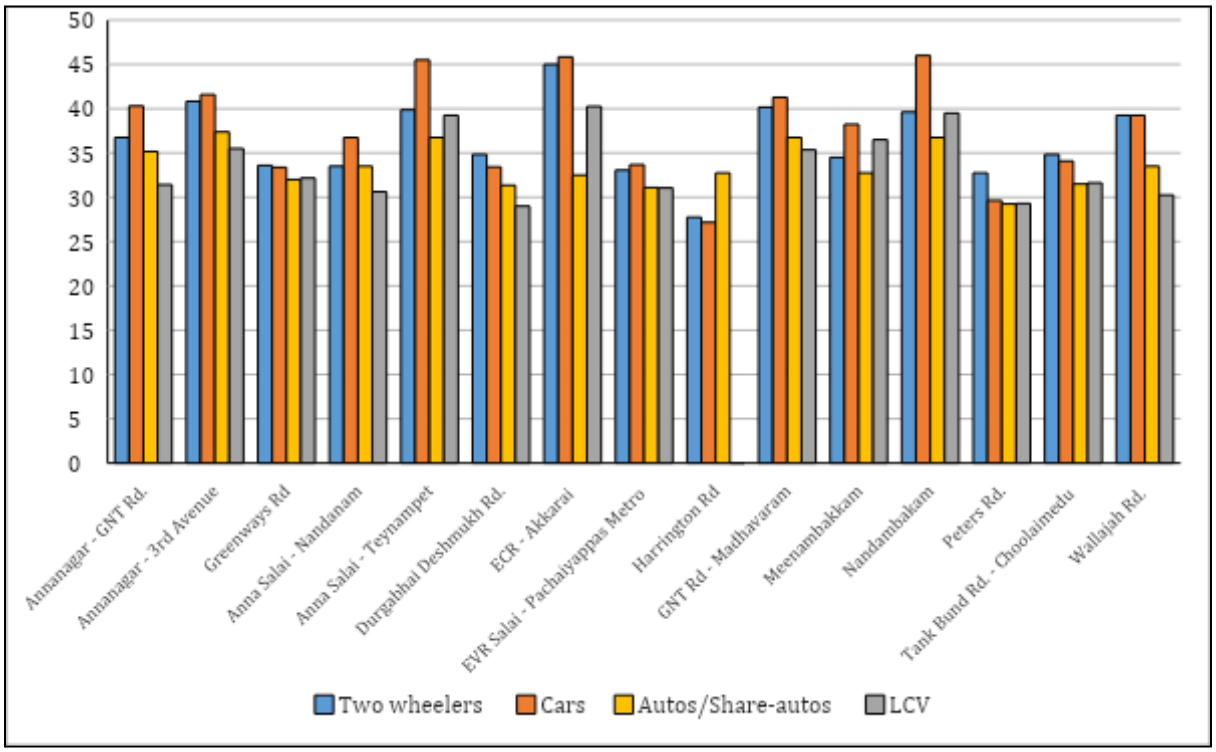

Figure 2: Graph showing the difference in the 15th percentile speeds of different vehicle categories across the selected 15 locations

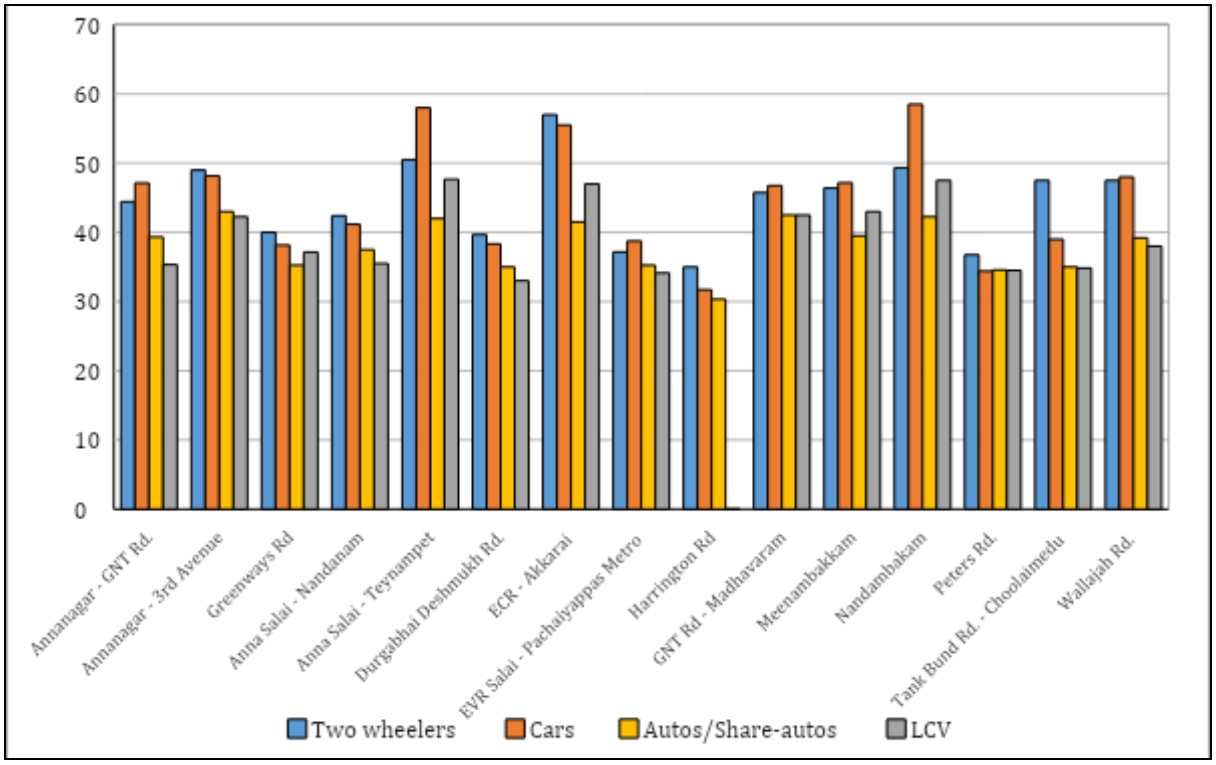

Figure 3: Graph showing the difference in the average free speeds of different vehicle categories across the selected 15 locations

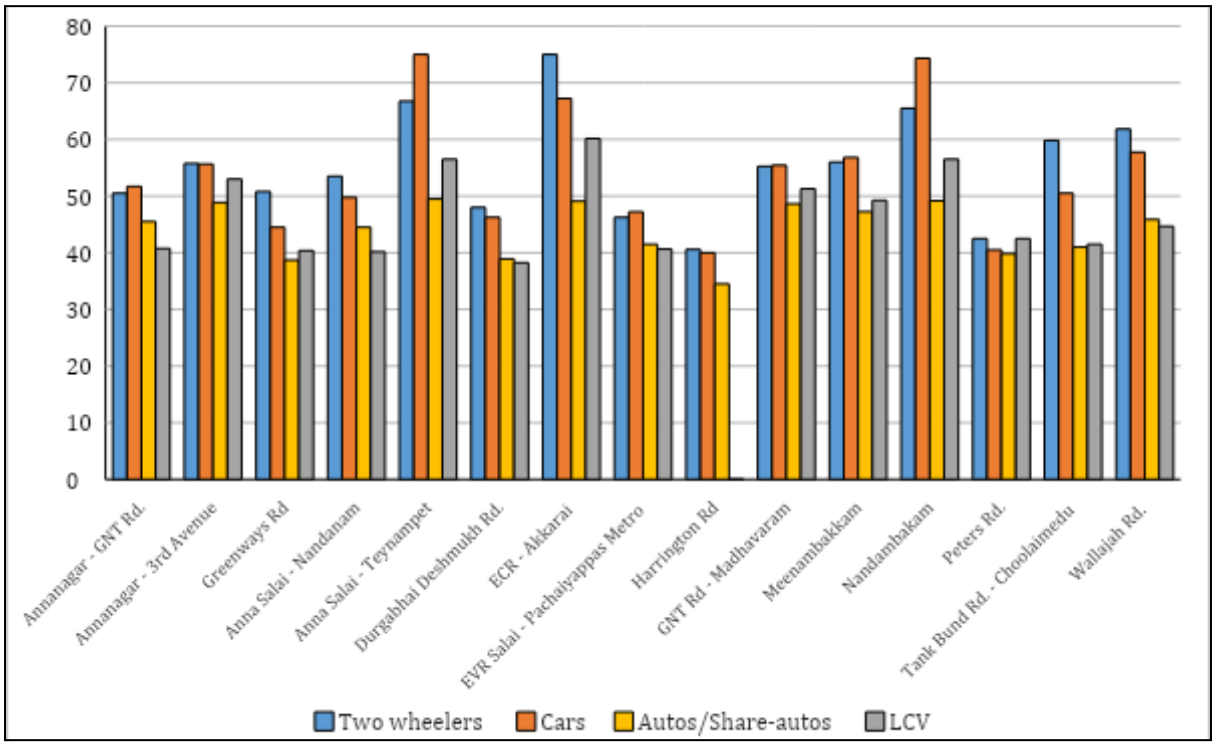

Figure 4: Graph showing the difference in the 85th percentile speeds of different vehicle categories across the selected 15 locations

The graphs above clearly show a significant difference between the 85th percentile (overall operating speed) and the posted speed limit across the vehicle categories considered in most of the locations. Although by road engineering and traffic engineering standards, the 85th percentile speed is considered as the reasonable speed chosen by vehicle drivers to drive comfortably, it cannot be considered as the only parameter while deciding on a speed limit in a heterogeneous traffic scenario, especially in urban arterials. In urban areas, the design of the street should generally be such that it limits the maximum speed at which drivers can operate comfortably, while balancing the needs of all users.[11] One has to factor other important concerns like the safety of Vulnerable Road Users (VRUs) such as children, pedestrians and cyclists who form a higher proportion of road user population.[12] Therefore in case of lesser speed variations across vehicle categories, it is important to factor in the potential conflicts that can occur at intersections between motorised users and VRUs. This can be further illustrated by variations in braking distances and reaction time. The reaction time available to perceive a conflict with a pedestrian/cyclist/a child, bring the vehicle to a stop and avoid a road crash decreases dramatically with increase in speed. This is why speed contributes to higher risks of grievous injuries and fatalities as the driver's field of vision decreases with speeding. Human injury tolerance is an important aspect that is being considered by several countries while setting speed limits.[13] Understanding the broader traffic reality of Indian roads where lack of lane indiscipline, dangerous and distracted driving, lack of sensitivity to VRUs and roadside encroachments are all prevalent concerns is necessary to determine a "safe speed" that would balance the needs of all road users.

As a head start to focusing on speeding and advocacy for low speed limits the following can be done:

- The posted speed limits as per the notification from the State Transport Authority dates back to 2003. With an increasing vehicular population in a shared road scenario like Chennai and varying driver traits when it comes to adhering to speed limits within the city, an immediate revision of the existing speed limits is required to sustain a safe road environment for all road users.

- The prevailing myth and a common driver perception that driving 5 - 10 kmph over the speed limit is not dangerous has to be busted. The Nilsson's Power model shows that speed has a direct influence on crash risks and severity. It shows that a 1% increase in average speed results in approximately a 2% increase in injury crash frequency, a 3% increase in severe crash frequency, and a 4% increase in fatal crash

[11] Everett, D. Thomas., 2015 Relationship between Design Speed and Posted Speed.U.S Department of Transportation, Federal Highway Administration. Retrieved from [https://www.fhwa.dot.gov/design/standards/151007.cfm]
[12] U.S Department of Transportation, Federal Highway Administration, 2021. Lower Citywide Speed Limits and Design Changes - Safer city arterials for all road users. Retrieved from [https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa2213/]
[13] Speed management: a road safety manual for decision-makers and practitioners. Geneva, Global Road Safety Partnership, 2008. Retrieved from [https://www.paho.org/en/node/55122]

frequency.[14] This is further reinforced by the data facts according to WHO's manual[15] on speed management which shows that the rate of survival when hit by a vehicle travelling at a free speed ranging between 40-50 kmph is 6 in 10 only. Education on approximate survival rates when hit by vehicles at different speeds is necessary and should be instilled among road users. Drivers should know that speeding is unacceptable and the reasoning behind it.

- Speed limits are only a part of speed management. Just by setting safe speed limits one cannot see a visible reduction in its deadly consequences. To encourage a change in driver behaviour, deterrents are necessary. As per the Motor Vehicles Amendment Act (MVAA), 2019 Section 183, penalties for speeding have been doubled for different categories of vehicles. It's high time the Tamil Nadu State government takes steps to ensure immediate implementation of the law. Drivers should feel the pinch when paying their speeding tickets, so that they do not violate the law.

5 Way Forward

To implement the discussed first steps and to chart out a speed management action plan and keep speeding concerns at bay the following focus areas should be considered.

5.1 Establishment of speed limits:

Devising speed limits should not be limited to just road categories and their functions or vehicle types that are prevalent within the city limits. It is important to consider an elaborate set of parameters including,

- Shared-use roadways and its vulnerable road users (pedestrians,cyclists,children etc.)
- A 'safe systems' approach that focuses on engineering and design of roads to minimise the risk of serious injuries and fatalities due to crashes.
- Expectations of drivers' travel speed so that upon enforcement, drivers are receptive to the posted speed limits.

5.2 Revision of existing speed limits:

Regular reviews of the speed limits should be undertaken considering various factors such as the operating free speed, seasonal road conditions, traffic scenario and crash reports for neighbourhoods.

[14] OECD/ITF, 2018. Speed and Crash Risk, International Traffic Safety Data and Analysis Group. Retrieved from [https://www.itf-oecd.org/sites/default/files/docs/speed-crash-risk.pdf]
[15] Speed management: a road safety manual for decision-makers and practitioners. Geneva, Global Road Safety Partnership, 2008. Retrieved from [https://www.paho.org/en/node/55122]

5.3 Rehabilitation of roads:

Physical infrastructure, primarily traffic calming measures - optimization of carriage width, speed hump, rumble strips and gateway treatments as a part of design and provision of walking infrastructure - will support in efficiently reducing the speeding menace. An inclusive road design should be emphasised especially in institutional (i.e. hospital and school zones), commercial and market areas. It is high time to rethink our road designs that have been predominantly favouring cars and motorists over the years.The design process should also be consultative involving multiple stakeholders such as road development authorities, different road user groups,urban planners,, enforcement officials and police personnel who manage daily traffic.

5.4 Information and warnings on speed limits:

Relevant signs and markings indicating speed limits of roads and transition zones (schools, hospitals, rural divisions, commercial, market areas etc) should be installed so that the public get the ‘no speeding’ message loud and clear. Care should be taken to ensure proper placement and visibility of these indicators. Transparent information on devising speed limits will also result in a likely higher acceptance of tougher enforcement measures.

5.5 Enforcement and legislation:

To maximise speed enforcement on roads and encourage conscious driver behaviour, the following factors should be considered,

- Implementing the provisions of the Motor Vehicles Amendment Act (MVAA) 2019 in the State of Tamil Nadu, to curb speeding by levying penalties and fines as per sections 183, 184 of the Act.
- Increased visibility of enforcement by adopting the “anytime - anywhere” strategy. This deters speeding through unpredictable enforcement at varied locations on different days, different times during the day/night by police personnel (using wearable cameras, speed guns, etc.), thereby holding the road users accountable to illegal speeding. The frequency of these enforcement drives should be increased and coupled with intelligent speed management systems to reap consistent compliance to the set speed.
- Effective monitoring by employing intelligent systems and technology in detecting vehicle speeding violations and rash driving. Use of speed cameras, vehicle speed display, Automatic Number Plate Recognition (ANPR) etc. at various segments of arterial roads will help and support enforcement.

5.6 Crash reporting and improving data gaps:

For efficiency of impact, enforcement should be coupled with monitoring and review of accident data, especially of those where speeding has been the primary cause. This is a major data gap that needs to be addressed at the State, city and the neighbourhood levels. Existing data collection systems of the State such as Integrated Road Accident Database (iRAD) should be well maintained and data accessibility should be improved.

5.7 Public education and speed management:

We also need a paradigm shift in public perception from viewing penalties and ticketing as a means of harassment to a reminder of road safety. This will help improve compliance and support speed reduction measures undertaken by the police. This can be done through harnessing community groups such as Resident Welfare Associations (RWAs), youth welfare groups, employee committees within organisations and other user groups such as students who can sensitise the public about speeding. Institutional setups such as the State's Road Safety Cell should allow such provisions that can help formulate support groups and establish neighbourhood speed limits by educating the public and promoting road discipline.

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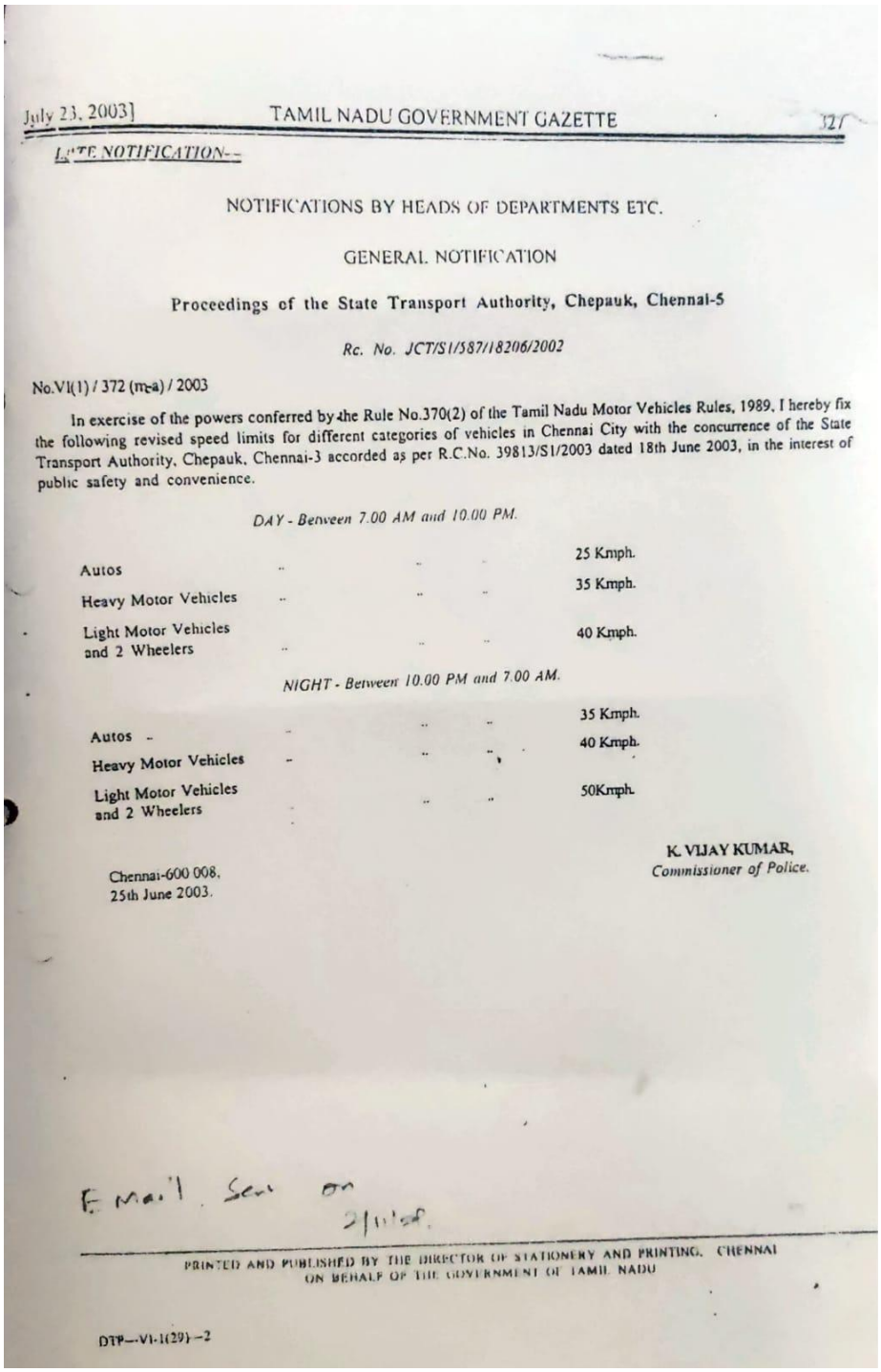
Appendix

1. Notification on speed limits by the State Transport Authority - As received through RTI.



July 23, 2003] TAMIL NADU GOVERNMENT GAZETTE 321

LATE NOTIFICATION--

NOTIFICATIONS BY HEADS OF DEPARTMENTS ETC.

GENERAL NOTIFICATION

Proceedings of the State Transport Authority, Chepauk, Chennai-5

Rc. No. JCT/S1/587/18206/2002

No.VI(1) / 372 (mca) / 2003

In exercise of the powers conferred by the Rule No.370(2) of the Tamil Nadu Motor Vehicles Rules, 1989, I hereby fix the following revised speed limits for different categories of vehicles in Chennai City with the concurrence of the State Transport Authority, Chepauk, Chennai-3 accorded as per R.C.No. 39813/S1/2003 dated 18th June 2003, in the interest of public safety and convenience.

DAY - Between 7.00 AM and 10.00 PM.

Autos	25 Kmph.
Heavy Motor Vehicles	35 Kmph.
Light Motor Vehicles and 2 Wheelers	40 Kmph.

NIGHT - Between 10.00 PM and 7.00 AM.

Autos	35 Kmph.
Heavy Motor Vehicles	40 Kmph.
Light Motor Vehicles and 2 Wheelers	50Kmph.

K. VIJAY KUMAR,
Commissioner of Police.

Chennai-600 008,
25th June 2003.

E mail Sent on 2/11/08.

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ON BEHALF OF THE GOVERNMENT OF TAMIL NADU

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