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CURRENT SITUATION ANALYSIS REPORT OF ACTIVITY ON DEVELOPMENT OF PUBLIC HEALTH STANDARDS IN PUBLIC TRANSPORT SYSTEMS

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Abbreviations

Intelligent Transport Systems	ITS	AUS	Akıllı Ulaşım Sistemleri
Infrastructure Coordination Centre	ICC	AYKOME	Altyapı Koordinasyon Merkezleri
Gross Domestic Product	GDP	GSYH	Gayrisafi Yurt İçi Hasıla
Occupational Safety and Health	OSH	İSG	İş Sağlığı ve Güvenliği
Sustainable Development Goal	SDG	SKA	Sürdürülebilir Kalkınma Amacı
Turkish Standards Institute	TSE	TSE	Türk Standartları Enstitüsü
Turkish Statistical Institute	TURKSTAT	TÜİK	Türkiye İstatistik Kurumu
Transport Coordination Centre	TCC	UKOME	Ulaşım Koordinasyon Merkezleri

1. Introduction

In addition to benefits and facilities which transport creates in economic and social life, it may also negatively affect the public health in many ways through policies, planning and service delivery. The transport pattern, which emerges as a result of preferred mode of transport and travel behaviours and/or sectoral policies of cities/regions and spatial preferences, may trigger many negative physical and psychological conditions; and losses and injuries which occur as a result of road accidents also have significant negative effect on public health. While loss of life and property due to road accidents is a significant economic and social problem for Turkey, the scope of this study is limited to diagnosing the current situation and developing standards for public health protection in accordance with the needs identified in service delivery for urban public transport.

The number of MMs increased from 16 to 30 by the Law No. 6360 and all residential areas within the MMs including MDMs are included in public transport network of MMs as the jurisdiction of MMs has expanded to provincial administrative boundaries together with the abolition of village and town municipalities. Thereby, weaknesses have emerged in the delivery of public transport service in a holistic way and a certain service quality together with increase of scale in municipalities already experiencing problems with service standards as well as financial matters. Not having a policy, strategy and a special legislation prepared in a holistic perspective in this area has led to the shaping of practices in the framework of individual efforts and institutional capacity and competences of municipalities.

In that context, this study first addresses the legal and institutional infrastructure relating to public transport in the framework of strategy and policy documents as well as current legislation. Then, it focuses on a review of models of service delivery for public transport, financing models as well as regulation and inspection processes in Turkey. Then, Chapter Four treats the regulations and practices relating to public health in public transport, and Chapter Five addresses the response to COVID-19 pandemic, crisis management, coordination, measures taken and points relating to how the standards of public health are implemented and monitored; and both Chapters provide analyses and situation evaluations on their respective subject-matters based on the findings derived from online meetings with the representatives of relevant municipalities and central government agencies and from the written answers to semi-structured questions directed to participants.

2. Legal and Institutional Infrastructure of Public Transport in Turkey

2.1. Public Transport Policies in Higher Policy Documents

The Eleventh Development Plan (2019-2023) consists of five fundamental axes as being consistent and strong economy, competitive production and productivity, qualified people and strong society, liveable cities and sustainable environment, rule of law, democratization and good governance (Strategy and Budget Office, 2019a). Four policies on public transport and fourteen measures relating to these policies are included in the content of the heading of urban infrastructure under the axis of “Liveable Cities and Sustainable Environment”. On the other hand, there are twelve activities and projects under the public transport policies in the Annual Presidential Program 2021 (Strategy and Budget Office, 2020a) allowing the monitoring of the Eleventh Development Plan annually and including activities and projects relating to measures.

The policy no. 701 of the Eleventh Development Plan includes the expression that “Policies, decisions and investments related to zoning and transport in cities will be evaluated in a coordinated manner, especially zoning plans and transport master plans will be prepared and updated compatibly.” Under the policy in question, the measure no. 701.1 provides that “A coordination mechanism will be established to ensure that the spatial plans and transport master plans are compatible” whereas the measure no 701.2 states that “Regulations will be made regarding the review and approval of the urban rail system projects as well as the principles and procedures for the acquisition of municipal rail system projects by the Ministry of Transport and Infrastructure (MoTI). Rail system design guidelines will be updated and statistical data infrastructure will be established.”

The Eleventh Development Plan also includes policy no. 702 that “In order to reduce traffic congestion, accidents and air pollution in cities, rather than private vehicles, the use of public transport systems will be encouraged by applying demand-side policies rather than supply-side policies in urban transport” and lays down the following measures:

- “702.1. Taking into consideration the traffic density and travel demand in urban public transport, bus, bus rapid transit and similar systems will be primarily preferred and rail system alternatives will be considered on the routes where those systems are inadequate.
- 702.2. The rail transit systems will be planned on the corridors where expected per hour-per direction travel demands in the expected year of operation to be at least 7,000 passengers/hour for tram systems, 10,000 passengers/hour for light rail systems and 15,000 passengers/hour for metro systems.
- 702.3. A single card payment system will be implemented for the widespread use of public transport systems.
- 702.4. Dynamic pricing will be utilized for infrastructure with bottlenecks such as parking areas, bridges tunnels, park-and-ride and dedicated lane practices will be implemented.”

A policy framework is established on matters such as demand management, project designing and payment systems in public transport systems through the relevant set of measure. On the other hand, it is aimed in the Annual Presidential Program 2021 to complete necessary permission processes by creating an infrastructure for the expansion of single card payment system as well as it is planned to determine the roadmap for the implementation of demand management practices in three pilot provinces.

While a policy relating to planning, project designing and demand management of urban transport systems is produced with policies of 701 and 702, the policy no. 703 provides that “Environment friendly transport modes will be developed and non-motorized transport modes will be encouraged in urban transport” and includes measures to establish standards for pedestrian ways and sidewalks, establish pedestrianized areas which are free of motor vehicles, encourage the use of bicycles, prepare bike path master plan and implementation plan, establish bike sharing systems.

In order to expand Intelligent Transport Systems (ITS), the policy no. 704 of the Eleventh Development Plan states that “In order to use existing infrastructure more efficiently, to enhance traffic safety, to manage transport demand correctly and to make more effective planning, a national Intelligent Transport Systems (ITS) Strategy Paper will be prepared, ITS architecture will be developed and ITS applications will be expanded.” In this regard, ITS Strategy Paper and Action Plan was published and put into force in 2020 and it is proceeded to carry out studies on the development of ITS architecture.

The urbanization heading under another subheading in the axis of “Liveable Cities and Sustainable Environment” of the Eleventh Development Plan includes the measure no. 674.1 stating that “New sub-centres will be defined in master plans and technical standards necessary for public transport and pedestrian access to the sub-centres shall be determined in the sub-scale plans, and Regulation on Preparation of Spatial Plans will be revised in line with these standards.”

2.2. Public Transport in Sectoral and Thematic Strategy Papers and Strategic Plans

Institutional strategic plans prepared in accordance with higher policy documents and Strategies, goals and actions relating to public transport systems in sectoral and thematic strategy papers are examined through the following documents, and elaborated in the following section:

- Strategic Plan for the Ministry of Transport and Infrastructure (2019-2023)
- Strategic Plan for the Ministry of Environment and Urbanization (2019-2023)
- Strategy Paper (2021-2030) and Action Plan (2021-2023) for Road Traffic Safety
- National Strategy and Action Plan for Smart Cities (2020-2023)
- National Strategy Paper and Action Plan for Intelligent Transport Systems (2020-2023)
- National Action Plan for Energy Efficiency (2017-2023).

Three goals are included in the Strategic Plan (2019-2023) of MoTI (2019) in relation to public transport systems. In the first of these goals, it is aimed to expand urban rail systems in a way that is of high standard, safe and meets the needs of the country as well as to prepare studies & projects, design guides, standards and regulations under the goal however relevant guides and regulations are not elaborated. It is planned to execute rail system construction projects in various provinces in accordance with the goal of contributing to the development of urban transport infrastructure. On the other hand, performance indicators are determined to create ITS strategy paper and develop ITS architecture in accordance with the goal “to expand the use of intelligent transport systems in order to use current transport infrastructure more efficiently, make a more effective planning and increase traffic safety”. There are also strategies determined to provide sustainable intelligent mobility, develop road and drive safety as well as create a liveable environment and informed public.

It is aimed in the Strategy Paper (2019-2023) of the Ministry of Environment and Urbanization (MoEU) (2019a) to create a participatory and interactive management mechanism relating to local administrations as well as smart cities in order to conduct infrastructure works to create smart cities in relation to public transport systems. While it seems the biggest risk factor when stakeholder agencies do not participate in the process in an effective way in the implementation of goal in question, it is emphasized that it is necessary to implement the National Strategy and Action Plan for Smart Cities.

The Strategy Paper for Road Traffic Safety (2021-2030) and Action Plan for Road Traffic Safety (2021-2023) prepared by relevant agencies in the coordination of the Ministry of Interior (MoI) (2021) went into force by publication in the Official Gazette of 03.02.2021 issue 31384. Weaknesses relating to public transport systems under the Strategy Paper of Road Traffic Safety (2021-2030) include not making action plans for safe public transport for cities, that MMs do not conduct road safety works for transport systems and road networks within their jurisdiction, lack of road safety in main and intermediate public transport vehicles, not having a national authority who is responsible for urban road safety and that public transport vehicles are not suitable for accessibility standards. In addition, extensive strategies are presented in relation to public transport systems in the Strategy Paper of Road Traffic Safety. In this framework, the following strategies are recommended under the strategy paper in question:

- Provide that people living in urban areas to travel by walking, riding bike or using public transport,
- Establish a public transport network that is expeditious, environmentalist, cheap, safe and comfortable,
- Take measures to encourage preferring public transport and to prevent personal vehicles from being preferred,
- Determine hierarchical priority among road users and ensure that pedestrians will be at the first place in this hierarchy and respectively followed by riders and those using public transport,
- Design the infrastructure of roads in a way that people will prefer public transport more,

- Standardize the transport management system of each city,
- Plan, implement and update every five year the “Urban Transport Master Plan” in main cities and transport master plan for each city with the population of 500,000 and higher,
- Establish parking areas that will allow private vehicle users outside the city centres to use public transport while entering the city centre,
- Make public transport systems accessible for people with movement restriction,
- Address the accessibility and transport for people with disabilities as one of the main topics in local public transport plans by local units,
- Provide standard and sufficient level of training for public transport drivers and refresher training at certain intervals.

The Action Plan for Road Traffic Safety (2021-2023) put into force simultaneously with the Strategy Paper covering the years between 2021-2030 includes the goals of contributing to traffic safety by taking measures for calming urban traffic, reducing negative effects of personal vehicle use on traffic safety by providing easy access public transport, increasing the use of security systems in public transport vehicles and developing systems that will provide instant notifications for passengers at stops or during travel. It is important to carry out actions by being adopted by relevant public agencies of the Strategy Paper for Road Traffic Safety (2021-2030) and Action Plan for Road Traffic Safety (2021-2023) including elaborative strategy and actions for public transport systems.

The National Strategy and Action Plan for Smart Cities that went into force by publication in the Official Gazette of 24.12.2019 issue 30988 was prepared in coordination with MoEU (2019b). In accordance with the goal of increasing the maturity of intelligent transport component included in the scope of relevant strategy paper, it is emphasized to provide conformity of intelligent transport systems with the architecture of smart cities by expanding public transport systems.

Three actions directly relating to public transport systems are included in the National Strategy Paper and Action Plan for Intelligent Transport Systems (2020-2023) prepared by MoTI (2020) in order to create strategies concerning intelligent transport system as an important component of smart cities. It is aimed in the first of these relevant actions to establish passenger information screens integrated with public transport vehicles at public transport stops and in vehicles, and share the basic data to be obtained for mobile passenger information system. It is planned to establish an ITS implementation committee in MMs under the action for the installation of passenger information systems and that the studies will be conducted by the committee. It is aimed to provide integration between fare collection systems for all public transport vehicles at national level and single card payment system planned to be established in 2022 and to allow passengers to have access to transport services with a standard card. While it is planned to “use electrical vehicles for public transport fleets and service vehicles and encourage public transport” under the third action included concerning public transport systems in the action plan, concrete steps are not included and

the process is left in the charge of MMs without creating any standards for the implementation.

The National Action Plan for Energy Efficiency (2017-2023) prepared in coordination with the Ministry of Energy and Natural Resources (MENR) contains actions concerning public transport to “reduce traffic density in cities by reducing automobile driving”, “expand public transport” and “develop and implement institutional reorganization for urban transport”. The following activities are highly critical in terms of the development of public transport systems under the action plan including activities that are elaborative with regard to the development of public transport systems for relevant actions:

- Take deterrent measures which restrict the automobiles to enter city centres,
- Carry out physical organizations for drop-off and pick-up areas of vehicles such as taxi, bus, public minibus,
- Make regulations to ensure that parking fee is expensive at regions where there is intense urban traffic and considerably cheap at places where the traffic is light, organize intermodal public transport systems,
- Develop infrastructure and mobility plan for expansion of public transport systems,
- Expand the use of vehicles that are environmentalist, with low weight, electrical or hybrid, natural gas operated etc. by providing uninterrupted integration among modes of transport,
- Make regulation at routes and stops of public transport vehicles on the basis of intermodal transport,
- Improve service quality in order to encourage passengers to prefer public transport systems,
- Support institutional organization of local institutions that will prepare master plans for national and local transport in order to provide sustainable transport,
- Prepare an Urban Transport Strategy at national level,
- Provide the administration of all kinds of motions of vehicles and pedestrians by strengthening the current structure of transport management units within the municipalities with a mobility management approach that is supported with intelligent transport systems in terms of energy efficiency and environment,

The action plan includes not only public transport systems but also actions for road and railways transport. It is also planned in the action plan to create an infrastructure for information network in which information and data for urban transport will be collected and evaluated by comprising a database in transport systems.

It stands out that there are considerably qualified and elaborative actions in strategy papers and action plans that are prepared in the coordination of MoEU, MENR and MoI and not transport sector-themed, in order to improve public transport systems and provide outcomes in this field. In this framework, it is significant to immediately implement abovementioned actions and activities, create regulation, standard, guide and instructions on public transport systems, as well as prepare an integrated strategy paper on public transport in which public

transport systems are examined with their all components and needs for this field are indicated.

2.3. Sustainable Development and Public Transport Systems

Transport services are among the main factors that directly or indirectly affect sustainable development objectives prepared in the framework of components such as technological progress, demographic changes, climate change, access to resources and energy efficiency. It is necessary for sustainable transport defined as a highly accessible, safe, environment-friendly and economic transport to have a structure that is safe and compatible with human and ecosystem in terms of basic access needs of people and communities, providing equality among generations, reasonably priced and highly efficient, allowing choice between various types of transport, restricting emission and waste amount, minimizing use of resources, causing minimum use of field and noise pollution (Litman, 2012; Schiller et al., 2010). On the other hand, it is also aimed to improve transport safety and public health under human health and safety included in the social objectives of sustainable transport that has different dimensions in terms of economic, social and environmental aspects (Litman, 2011).

Most of the Sustainable Development Goals (SDGs) determined as a result of the Summit of Sustainable Development held in 2015 by UN and consisting of 17 goals are relating to transport activities and specifically SDG 11 “Sustainable Cities and Communities” is directly associated with public transport activities. In accordance with the SDGs, global efforts are increasingly growing on the establishment of urban transport system that is safe, efficient, easily accessible, economic, environment-friendly, more balanced and focusing on human factor. In this respect, sustainable transport systems provide important opportunities for the solution of problems resulted from current transport paradigm.

The goal determined under SDG 11 that includes “By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding Public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons” remaining valid for Turkey (Strategy and Budget Office, 2019b).

Main factors of policy framework relating to public transport systems under SGD 11 include making urban transport investment according to transport plans on the basis of public transport and compatible with land use plans, effectively benefitting from information technologies and intelligent transport systems in traffic management and public transport services, developing and transforming urban transport infrastructure mainly according to pedestrians and public transport (Strategy and Budget Office, 2019c).

The indicator relating to the public transport systems under SDG 11 is determined as the indicator of population rate who have easy access to public transport vehicles. While there is no value regarding the relevant indicator before 2014, in 2014 the rate of population who have easy access to public transport vehicles increased to 77.7% in 2014 and to 83.6% in 2019 (TURKSTAT, 2021a). Moreover, in 2019, the rate of population who have easy access to public transport vehicles was 87.9% in Ankara, 98.1% in Istanbul and 84% in Izmir.

2.4. Legislation on Local Administrations

One of the most important problems of local administrations is the need for creating a quality and comfortable public transport system as an alternative for car use in urban transport due to problems of traffic congestion and air pollutions resulting from density in certain areas caused by increasing urbanization and population. The quality of public transport systems providing opportunity for effective and sustainable access in urban transport is measured with physical conditions of public transport system such as cost effectivity, security, reliability, waiting period at stops, punctuality, travel time, public health oversight, hygiene, management of negative environmental effects as well as design, comfort and number of seats. Public transport services with high visibility due to its sphere of influence play a determinant role on life quality of urban inhabitants and satisfaction level of citizens from municipal services. In this framework, local administrations allocate so many resources for establishment, development and delivery of public services and improve their institutional capacity. Thus, according to the Investment Program of 2021, appropriation for projects included in the Investment Program reaches 14.4% of total public investments because the projects are implemented by MoTI, MoEU, Bank of Provinces and 7 MMs with foreign loans in the urban transport sector. The share of urban transport sector is 75.9% within total cost of externally-funded investment projects which is approximately 150 billion TRY in the Investment Program of 2021.

Institutions under the local administrations and central government are conferred functions, powers and responsibilities on the implementation of public transport services. On the other hand, local administrations can publish regulations and instructions organizing rules and procedures concerning public transport through municipal councils. In this regard, in the following sections, the legal framework is presented in relation to delivery of public transport services in terms of local administration and functions and responsibilities of local administrations are addressed.

2.4.1. Law No. 5216 on Metropolitan Municipalities

The Law No. 5216 on Metropolitan Municipalities considered as the main law governing functions and responsibilities of Metropolitan Municipalities (MMs) went into force in 2004, and was amended many times to date. While there were 16 metropolitan municipalities in Turkey when the law in question first went into force, the number of MMs increased to 30 at present. The Law No. 5216 aims to ensure planned, programmed, effective, efficient and compatible implementation of services with the regulation of legal status of local administrations in provinces which have gained metropolitan status with different legal regulations.

The functions, powers and responsibilities of MMs and MDMs relating to public transport under the Law No. 5216 are discussed considering the provisions of the existing law. Moreover, the amendments introduced under the Law No. 6360 on “Establishment of Metropolitan Municipalities and Twenty-Seven Districts in Fourteen Provinces and Amending Certain Laws and Decree-Laws” are addressed in the next sub-heading.

The functions and powers of MMs relating to the planning and operation of public transport systems are defined in Article 7 of the Law No. 5216. In this respect, in accordance with Article

7(f) of the Law on the planning of public transport, MMs are mandated to “plan and coordinate transport and public transport services; designate the numbers, fares and schedules, stops, timing and routes of any type of shuttle vehicles, public transport vehicles and taxis that are operated on land, sea, water and rail ways.” It is also provided in the relevant article that MMs shall make and implement transport master plans.

Moreover, according to the subparagraph (p) of the same article on the operation of public transport system, MMs are mandated to “provide metropolitan public transport services, and to this end, establish or cause to establish and operate or cause to operate such facilities, and issue licenses for public transport vehicles, including taxis and shuttle vehicles, on land and sea within the metropolitan boundaries.” In addition, in the same subparagraph, MMs are tasked with making decisions on having public transport services operated in relation to routes to be determined on the basis of distance to city centre, population and number of people using that route. It is also provided in Article 7(aa) of the Law that it will be decided on providing the operation of public transport routes at places determined considering the criteria in question by transport unions or cooperatives established at that region and the conditions to be required for those who will participate in contract and transport vehicles to be used will be determined by the municipalities.

In Article 9 of the Law, there are provisions relating to the delivery of transport services in MMs in coordination through Transport Coordination Centres (TCC). TCC exercises the powers relating to planning and coordination of traffic services conferred to MMs under the Law and determination of routes, stops, parking lots and numbers of taxis, public minibuses and shuttle vehicles and powers of the Provincial Traffic Commission within the boundaries of MM. The rules and procedures of TCC are laid down in the Regulation on Coordination Centres of Metropolitan Municipalities and regulations regarding their establishment and activities will be discussed in detail at Section 2.4.4.

Moreover, when there are provisions contrary to the Law No. 2918 on Road Traffic relating to the delivery of public transport services, in the implementation of the Law No. 5216, it is provided in Article 9 of the relevant Law that the Law No. 5216 shall apply.

2.4.2. Impact of Amendments to Law No. 6360 and Other Laws on Public Transport Systems

The functions, powers and responsibilities conferred to MMs relating to public transport systems under the Law No. 5216 underwent some amendments as a result of regulations conducted in accordance with the following provisions in order to eliminate disruptions in the implementation:

- Law No. 5594 on “Amending Law on Metropolitan Municipalities, Law on Municipality, Law on Special Provincial Administration and Law on Unions of Local Governments” which went into force in 2007,

- Law No. 6360 on “Establishment of Metropolitan Municipalities and Twenty-Seven Districts in Fourteen Provinces and Amending Certain Laws and Decree-Laws” which was published in 2012¹,
- Law No. 7144 on “Amending Certain Laws” which was published in 2018.

In accordance with the Law No. 5594, Supplementary Article 2 is included in the Law No. 5216 and in the scope of relevant article license, concession and transport vehicles lease contract provided in order to have public transport services which are currently carried out by municipalities within the boundaries of MMs conducted by natural and legal persons are included in the public transport systems of MMs on condition that they are restricted with time period and route indicated in their licenses. By this way, licenses granted to natural and legal persons by MDMs before the entry into force of the Law No. 5216 are included in the public transport system of MMs.

In accordance with the Law No. 6360, the boundaries of MMs are identified with provincial boundaries and legal personalities of village and town municipalities included in the boundaries of affiliated districts are abolished. On the other hand, with the Law No. 5216, MDMs are not tasked with anything relating to public transport systems planned, operated and inspected by MMs. In this respect, MMs started to perform the task of delivery of public transport services to MDMs and village and town municipalities that were transformed into neighbourhoods by abolishing their legal personality. In this way, there have been problems relating to the delivery of public transport services especially to village and town municipalities transformed into neighbourhoods and to MDMs. It became difficult to manage the scale expanding depending on the increase in the number of residential areas that should be provided with public transport service within the boundaries of MMs and financial problems came out due to the emerging need for public transport vehicles and public transport activities considered to be conducted by service procurement.

In accordance with the Law No. 7144, MMs are tasked with making decisions on having public transport services operated in relation to routes to be determined on the basis of criteria of distance to city centre, population and number of people using that route through the supplement to Article 7 Paragraph 1(p) of the Law No. 5216. In addition, it is also provided with the same regulation that MMs can make decision on providing the operation of public transport routes at places determined considering the relevant criteria from transport unions or cooperatives established at that region. Thereby it became possible for local stakeholders to deliver public transport service especially in rural areas.

2.4.3. Law No. 5393 on Municipality

In accordance with Article 14 of the Law No. 5393 on Municipality which went into force by publication in the Official Gazette of 13.07.2005 issue 25874, municipalities are mandated to carry out urban traffic services. In addition, according to paragraph 1(f) of Article 15 “Powers and Privileges of Municipality” of the Law, it is provided that municipalities are assigned to conduct public transport and for this purpose to establish or operate all kinds of public

¹ According to Article 1 of the Law No. 6447 of 14/3/2013, the expression of “THIRTEEN” in the title of this law is replaced by “FOURTEEN” and expression of “TWENTY-SIX” by “TWENTY-SEVEN” and expression of “Ordu” is inserted to follow the expression of “Muğla” in paragraph 1 of Article 1.

transport systems including bus, sea and water transport vehicles, tunnel, rail system or have them established or operated.

It is provided in Article 15 of the Law No. 5393 that municipalities can devolve public transport services through concession in accordance with the opinion of council of state and decision of MoEU in a way not to exceed forty-nine years. In addition, it is also provided that municipalities can carry out public transport services by issuing license in a way that does not create concession or monopoly and through lease or procurement by awarding a contract whose duration will not exceed the end of the sixth month following the first nationwide local elections.

As also expressed in the Law No. 5216, according to the paragraph 1(p) of Article 15 of the Law No. 5393, municipalities are mandated to designate the numbers, fare and tariffs, timing and routes of any type of shuttle vehicles, public transport vehicles and taxis in all modes of transport. In this respect, while municipalities obtained broad powers to carry out public transport systems through operating, leasing or service procurement, there is no set of criteria or standard framework introduced in the delivery of public transport services. On the other hand, there is no provision under law relating to the inspection of public transport service provided from third parties when municipalities cannot deliver public transport services through their own means.

When there are provisions contrary to the Law No. 2918 on Road Traffic, Law No. 4925 on Road Transport and Law No. 1593 on Public Health relating to the delivery of public transport services in the implementation of the Law No. 5393 which regulate the functions and powers of municipalities, it is provided in Article 84 of the Law in question that the Law No. 5393 shall apply.

2.4.4. Regulation on Coordination Centres of Metropolitan Municipalities

The Regulation on Coordination Centres of Metropolitan Municipalities issued by MoI on the basis of Articles 8 and 9 of the Law No. 5216 was published in the Official Gazette of 15.6.2006 issue 26199. The relevant regulation determines the organization, functions and powers of Infrastructure Coordinating Centre (ICC) and Transport Coordination Centres (TCC) established within the body of MMs, working principle and procedures of relevant centres as well as formation of infrastructure investment account and their income.

Article 6 “Bindingness” of the Regulation provides that “Joint decisions made by of infrastructure coordinating centres and transport coordination centres relating to investment and public transport are binding for MMs, other municipalities under MM, public agencies and natural and legal persons within the boundaries of MM.”

The regulation firstly defines the organization, functions and powers of TCCs, includes meeting principles and lists the tasks of transport coordination units as well as working principles and procedures. The details regarding the organization, functions and powers of TCCs will be addressed in Section 3.3 about the regulation and inspection processes in MMs.

2.5. Legislation on Central Government

The following sections include reviews of details in the Law on Road Transport, Law on Road Traffic and relevant regulations, the Law No. 1593 on Public Health as well as the Regulation

on Procedures and Principles to Increase Energy Efficiency in Transport defining the functions and powers of public agencies under the central government relating to public transport systems in addition to legislative provisions identifying functions, powers and responsibilities of local administrations regarding public transport systems.

2.5.1. Law No. 2918 on Road Traffic

The Law No. 2918 on Road Traffic was published in the Official Gazette of 13.10.1983 issue 18195 and went into force to provide traffic order on roads in terms of safety of life and property and to determine the measures to be taken for issues regarding traffic order. While the Law No. 2918 on Road Traffic is considered as a framework law, general provisions relating to traffic safety are included in the scope of this law. On the other hand, details relating to the provisions under this law are regulated in the Regulation on Road Traffic which is reviewed in Section 2.5.4.

The details relating to functions and powers of the Road Traffic Safety Board established to enable the determination, implementation and coordination of goals relating to road safety in accordance with Article 4 of the Law are presented in the framework of relevant regulation.

While several functions are assigned to the Ministry of National Education, Ministry of Health (MoH) and MoTI, it stands out that MoI is responsible for traffic management and control. In this respect, MoI is responsible for the control of vehicles, necessary documents to be provided at vehicles, drivers and whether those using road comply with rules or not.

In accordance with Article 10 “Municipal traffic units, their functions and powers” of the Law, it is stated that functions assigned to municipalities will be carried out in cooperation with provincial and district traffic commissions and it is provided that municipal traffic division and precinct or office will be established under Mayor’s Office. In addition, municipal traffic units are also mandated to provide traffic order and safety on roads whose construction and maintenance municipality is responsible for and place traffic signs at places where necessary.

It is provided in accordance with Article 12 of the Law that provincial and district traffic commissions established in provinces that are not metropolitan will be created under the chairmanship of governor or lieutenant governor in provinces and of district governor in districts. The commissions in question are mandated to provide traffic order and safety according to local needs and conditions, take measures regarding infrastructure services in terms of ensuring smooth traffic flow and solve issues of traffic, lay down the working mode and conditions, places and routes of operation, and numbers of passenger and cargo vehicles and non-motor vehicles that will be used for commercial purposes within the boundaries of municipality.

2.5.2. Law No. 4925 on Road Transport

The Law No. 4925 on Road Transport which went into force by publication in the Official Gazette of 19.07.2003 issue 25173 serves the purpose of regulating road transport, providing order and safety during transport and regulating transport processes. Details relating to the general provisions of Law on Road Transport considered as framework law are defined in the Regulation on Road Transport and the relevant regulation is addressed in Section 2.5.5. It is presented in the following part the matters relevant to public transport systems.

Article 2 “Scope” of the Law No. 4925 provides that it is possible to confer the power of regulating transport within provincial boundaries to governorships in cooperation with provincial and district traffic commissions and urban transport within the boundaries of municipality to municipalities on the basis of regulation to be issued according to the law.

It has become compulsory for transporters to receive licenses from MoTI to engage in transport operations. Moreover, Article 6 “Responsibility of transporter” of the Law provides that transporters are responsible for passenger transport in a safe way and passengers are obliged to comply with measures taken by transporter in terms of safety. In addition, the transporter is also obliged to comply with provisions of the legislation put into force to prevent environmental pollution and protect environmental and human health. On the other hand, Article 7 “Obligation of transporter” of the Law provides that the transporter is obliged to take measures to allow passengers to have a healthy, comfortable and safe travel. In this respect, while it is made obligatory for those who engage in passenger transport to obtain license and for transporters to take measures relating to human health, safety and environment, it stands out that relevant matters are included in a broad framework and details are left to implementation.

2.5.3. Law No. 1593 on Public Health

In accordance with the Law No. 1593 on Public Health which went into force by publication in the Official Gazette of 06.05.1930 issue 1489, it was aimed to combat all kinds of diseases that are harmful to health of citizens and various provisions are included to prevent the spread of epidemic in passenger transport under the law.

It is provided in Article 49 of the Law to take measures relating to medical examination of ships, taking passengers who are suspected of having contagious disease under supervision or isolating them, treatment and isolation of patients in relevant health units, providing vaccine or serum for passengers and crew to prevent the entry of infectious and epidemic diseases through ports. It is indicated in Article 146 of the Law that measures to be taken to prevent the spread of epidemic in public transport vehicles such as railway, tramway and bus are in the responsibility of operators of relevant vehicles and those who have contagious disease are not allowed to use public transport vehicles.

It is provided in Article 23 of the Law that public health boards will be established in each province and each board will be moderated by governor or health director as the representative of governor. It is also expressed in Articles 27 and 28 of the Law that the board should inform citizens on epidemic diseases and measures taken on this matter should be implemented by governor or district governor.

2.5.4. Regulation on Road Traffic

It is aimed in the Regulation on Road Traffic put into force in accordance with the Law No. 2918 on Road Traffic to determine the procedures and principles relating to providing traffic order on roads in terms of safety of life and property, and determining and implementing measures to be taken for issues regarding traffic safety.

The functions, powers and members of the Road Traffic Safety Board established under the Law No. 2981 are laid down in Article 8 of the Regulation. The Board consists of representatives of relevant agencies under the chairmanship of President of Traffic Services

in General Director of Security. The Road Traffic Safety Board is established to perform the primary tasks of providing coordination among organizations on traffic, preparing recommendation to reduce traffic accidents and preparing plans to improve road safety.

As included in the Law No. 2981 in addition to provisions relating to the formation of Police and Gendarmerie Organization under the Regulation, functions and powers of municipal traffic units are elaborated in Article 16 of the Regulation. In this context, municipal traffic service units are mandated to provide traffic order and safety, make traffic signs and road markings as well as prepare time-scheduled programs for departure-arrival and intermediate stops, and traffic flow programs of public transport vehicles on roads for which they are responsible for construction and maintenance. It is also provided in the same article that except for their assigned functions, municipalities may not control traffic and make any official report regarding traffic offences and tickets.

Moreover, in accordance with the regulation, functions and powers of provincial and district traffic commissions are elaborated through the Law No. 2981. While decisions of provincial and district traffic commissions are binding to be implemented by official and private organizations, with the regulation, the commission is also mandated to redetermine speed limits according to maximum and minimum speed limit under necessary conditions.

2.5.5. Regulation on Road Transport

It is aimed in the Regulation on Road Transport prepared on the basis of the Law No. 4925 on Road Transport to provide order and safety in transport systems relating to public transport systems, determine financial and Professional standards for transport activities, regulate the qualifications of vehicles and facilities relating to the determination of rights and responsibilities of those carrying out transport activities and passengers.

Under the regulation, firstly authorization certificates are classified and it has become obligatory for natural and legal persons who will carry out transport activities to receive the authorization certificates from MoTI. On the other hand, it is provided that while D type authorization certificate will be granted to natural and legal persons who will make scheduled or non-scheduled domestic passenger transport or private transport by bus, F type authorization certificate will be granted to natural and legal persons who will be the agency of passenger transport for commercial purposes and T type authorization certificate will be granted to natural and legal persons and public agencies that will operate terminals. In this respect, it is understood that there is no obligation for local administrations to receive authorization certificate in urban transport activities, however it is necessary to have authorization certificate to operate terminals. In case of service procurement from third parties for public transport under the laws no. 5216 and 5393, it is compulsory for transporters providing relevant service to have authorization certificate.

The regulation requires that those who will carry out scheduled and non-scheduled commercial transport within province regardless distance and inter-city transport up to 100km have D4 authorization certificate. However, it is required in Article 7 “Within province and inter-city passenger transport up to 100km” that TCCs in MMs and Provincial Traffic Commissions in other provinces should submit their decisions to MoTI in order for D4 authorization certificate to be issued by the Ministry. On the other hand, it is provided under the regulation that authorization certificate does not have a drawback in terms of

supply/demand balance and transport mechanism in decisions to be submitted to the Ministry and it is necessary to report information on the number of vehicles and seating capacity regarding the routes of vehicles for which authorization certificate will be used.

It is provided in Article 40 “Common obligations of authorization certificate owners” of the Regulation that authorization certificate owners are obliged to take necessary measures to provide healthy, comfortable and safe travel for passengers and those who act in the opposite way will be subjected to administrative fine. However, no regulation is issued regarding the conditions required to have a healthy and safe travel.

2.5.6. Regulation on Procedures and Principles to Increase Energy Efficiency in Transport

The regulation which went into force by publication in the Official Gazette of 02.05.2019 issue 30762 involves procedures and principles in order to reduce air pollutants and greenhouse gas emissions, expand public transport, improve transport infrastructure in a sustainable way and prepare urban transport plans.

In Article 4 of the Regulation, while it is expressed that municipalities will take measures to reduce the use of private and commercial vehicles in city centres and use public transport in an effective way and the following points relating to public health are also provided under relevant measures:

- It is possible for municipalities to declare low emission zones in city centres and regions in district scale in which heavy traffic and air pollution are experienced,
- There will be priority for environment-friendly alternative fuelled vehicles with high service quality and energy efficiency in public transport.

2.6. Institutional Infrastructure and Coordination Between Central Government and Local Administrations in Public Transport Systems

As explained in the previous section, MMs and public agencies of central government have various powers relating to establishment, operation and control of public transport systems. MMs carry out activities of delivering, operating or having them operated, planning public transport services within the boundaries of MMs as well as making their time and route plans. While MDMs have no power relating to establishment and operation of public transport system, they can participate in TCC meetings regarding the topics which concerns their municipalities.

On the other hand, in non-metropolitan provinces, municipalities including MDMs can deliver public transport service and provide necessary transport vehicles for this purpose. Prior to the entry into force of the Law No. 6360, license, concession and lease contracts granted to natural and legal persons by municipalities are transferred to MMs. In accordance with the Law No. 6360, it is an ongoing important problem to deliver public transport services to municipalities granted with status of metropolitan district municipality and town municipalities, and provide access to rural areas.

Public transport activities in MMs are carried out and coordinated by Divisions of Transport. MMs carry out public transport activities through their associates or transport service with service procurement from third parties. In this respect, while the operation of public transport system is under the authority of MMs in accordance with laws no. 5216 and 5393, registration, approval and control activities of road public transport vehicles are conducted by MoI. On the other hand, control activities are also carried out by MMs under contracts prepared by MMs with third parties to deliver public transport service. In addition, while it is not compulsory to have authorization certificate in public transport vehicles operated by MMs or their associates, natural and legal persons providing public transport service to MMs are obliged to receive authorization certificate from MoTI.

While under the Law No. 1593 on Public Health those who operate public transport vehicles are responsible for taking measures to prevent the spread of epidemic diseases in relevant vehicles, it is also provided in Article 282 of the relevant Law that those who act contrary to prohibitions or those who do not follow the obligations will be subjected to administrative fine on condition that their acts do not constitute a crime as well. In addition, it is stated in Article 195 of the Turkish Criminal Code No. 5237 that the person who does not comply with measures taken by competent authorities to quarantine the place where there is a person infected with one of contagious diseases or died of that disease will be sentenced to imprisonment from two months to one year. In this regard, while operators are held responsible for measures to be taken against epidemic diseases in public transport vehicles, it is provided that the control of measures to be implemented will be conducted by MoI.

While TCC meetings created in accordance with the Law No. 5216 to be able to conduct public transport systems in coordination in MMs are carried out at the chairmanship of metropolitan mayor or the person who will be assigned by the mayor, district mayors also participate in relevant meetings with representatives of public agencies on transport issues which concern their own municipality and generate within the boundaries of their municipality. In addition, preparation of agenda for TCC meetings, keeping meeting records as well as relevant coordination are conducted by units under Divisions of Transport established within MMs. In this respect, TCC meetings constitute an important interface in MMs for the coordination of local administrations and agencies of the central government. Decisions relating to time and route plans for public transport systems, ticket and fare schedules, number of public transport vehicles and locations of stops are adopted in coordination in TCC meetings where there are also representatives of MoTI.

In addition, in accordance with the provisions of the Law No. 4925 on Road Transport and relevant regulation, TCC opinion is sought in order for MoTI to grant authorization certificate to transporters that are licensed by municipalities and will provide service in the province. In the opinion to be issued by TCC, it is compulsory to inform the Ministry on the transport routes, numbers and seating capacity of relevant vehicles.

In non-metropolitan provinces, coordination of public transport is conducted through provincial and district traffic commissions. While provincial traffic commissions constituted with the participation of representatives of public organization and institutions are chaired by governor, district traffic commissions are chaired by district governors. Commissions which have similar powers to TCC, determine the working mode and conditions of passenger

vehicles relating to public transport systems, locations where they can be operated, routes and numbers.

It is provided under the Regulation on Procedures and Principles to Increase Energy Efficiency in Transport that MMs and municipalities which are not within the boundaries of MMs and have a population higher than 100,000 will prepare Urban Transport Master Plan in accordance with National Transport Master Plan prepared by MoTI and present it to the opinion of Ministry. While it is aimed to harmonize the transport plans made by the Ministry and municipalities, transfer of data and information is also enabled. In addition, it is assured under the regulation that Turkish National Police and municipalities will share information by entering necessary data to the National Transport Portal developed by MoTI to provide transport information from single point to those who need. On the other hand, it is expressed in the scope of regulation that relevant public agencies will cooperate in practices of travel demand management and 7/24 real-time traffic management.

3. Service Delivery of Public Transport in Local Administrations

3.1. Models of Service Delivery in Urban Transport

It is possible to study urban transport systems under different classifications. As a general classification, it would be suitable to differentiate as motor and non-motor types of transport. While the examples of non-motor types of transport include human-powered wheeled vehicles such as walking, bicycle and rickshaw/scooter, motor types of transport can be exemplified as rubber-tired vehicles such as auto, metrobus, bus, minibus that are electric or fossil-fuel based; vehicles which move on rails such as metro, tramway and seaway vehicles such as ferry and car ferry.

Classifications regarding public transport are commonly based on mode or vehicle of transport that is used. These are generally considered under four main groups of rubber-tired transport systems, rail systems, water transport and cable systems. Rubber-tired public transport system is the most commonly used type of public transport both in our country and around the world. This type of transport, mostly of busses and minibuses, provides a major flexibility for local administrations because it does not require investment for a special infrastructure and has relatively low-scale structures as well as facilitates the participation of the private sector in public transport.

On the other hand, rail systems provide more economic and reliable/punctual solutions for routes with strong travel demand. Despite their installation infrastructure and vehicle costs, metro, light rail system and tramway can be introduced in cities above a certain travel demand on the basis of their capacity and more environment-friendly service delivery.

Water transport also appears as an important alternative in coastal cities. In our country, urban water transport service is provided in provinces such as Istanbul, Izmir and Çanakkale. A significant advantage of urban water transport is that it is a strong alternative in terms of heavy traffic in road network and also an environment-friendly mode.

Finally, there are also examples for relatively small-scale transport services in addition to conventional types of public transport. For example, public transport service can be also provided with cable systems (telpher) in provinces such as Ankara and Bursa.

It is also possible to address service delivery models in terms of ownership structure of service delivery. While municipalities provide public transport service conventionally by means of bus fleets under their possession, it is also possible to provide similar services through buses and minibuses operated by the private sector. In addition, it is possible to see public transport services provided in the partnership of different public institutions as specific to rail systems. For example, IZBAN established in 50% partnership of TCDD and Izmir MM provides service in suburban routes between Aliaga-Selcuk.

Paratransit transport systems that can be defined as relatively low-capacity and flexible intermediate transport model such as public minibuses are also widely used in cities.

3.2. Methods of Financing

Municipalities use various sources in addition to their equities to finance public transport services. Domestic or foreign project borrowing is one of the financing sources used by municipalities in addition to their equity. Domestic project borrowing is a type of financing provided from domestic financial institutions. Municipalities which wish to use foreign financing are obliged to get the approval of the Ministry of Treasury and Finance under the Law No. 4749 on Regulation of Public Financing and Debt Management and relevant regulations. In addition, municipalities can also use foreign funding through the Bank of Provinces.

In the Investment Program of 2021, there are urban transport projects prepared by MMs of Ankara, Antalya, Diyarbakır, Eskişehir, İstanbul, İzmir and Mersin which are financed with foreign loans. Those projects include investments mostly in construction (railroad infrastructure, rail system, station, scaffold) and vehicles (metro, tramway, bus, car ferry, ferry).

On the other hand, the central government has since 2010 been reducing financial burden on municipalities by assuming the investments for some of urban public transport projects. In this process started by the Decree No. 2010/1115 of 25.10.2010 of the Council of Ministers, MoTI takes over transport infrastructure projects being executed by municipalities and transfers them to municipalities after completion. In accordance with this Decree of the Council of Ministers, MoTI took over 3 of the projects executed by İstanbul MM (Metro Line of Bakırköy (İDO-İstanbul Seabus)-İncirli-Kirazlı, Metro Line of Bakırköy-Beylikdüzü and Metro Line of Bus Terminal-Bağcılar-İkitelli) and 4 of the projects conducted by Ankara MM (Ankara Metro 2nd Stage (M2): Metro Line between Kızılay-Çayyolu-2 Station, Ankara Metro 3rd Stage (M3): metro line between Batıkent-Sincan (OIZ Station), Ankara Metro 4th Stage (M4): metro line between Tandoğan (TCDD Ankara Railroad Station) and Keçiören (Gazino Station) and Ankara Metro 3rd Stage Electro-Mechanical Works as well as works relating to establishment of signalization system among M2, M3, M4 and implementation of necessary revisions for adaptation of M1 system to new system). In the following period, as MoTI took over the construction of additional urban transport projects in İstanbul and Ankara, it also undertook urban transport projects of provinces such as Konya, Kayseri, Kocaeli and Bursa. Municipalities can create alternative financing sources by devolving some public transport services to the private sector. As this financing source may be provided as savings from investment expenditures when transport investment to be made by municipalities are performed by the private sector, they can also occur as revenue obtained after privatization. For example, İstanbul Seabus Industry and Trade Inc. (İstanbul Deniz Otobüsleri Sanayi ve Ticaret A.Ş.) which was previously a company of İstanbul MM was privatized in 2011 and as a result, municipality received a privatization revenue of 861 million USD.

Diminishing demand as a result of COVID-19 pandemic has affected financial structures of municipalities by reducing their revenue originating from public transport services. Statistics included in the study "Public Transport in Metropolitan Municipalities 2020" (Deveci, 2021) published by the Union of Municipalities of Turkey indicate this situation in a more concrete way. The change in question will be elaborated in Section 3.4 relating to public transport overview in Turkey.

3.3. Regulation and Supervision Processes

When regulation and supervision processes in public transport services are examined, it draws attention that there is a central government gap. Under General Directorate of Infrastructure Investments in MoTI, there are two departments relating to urban transport namely as Department of Construction of Urban Rail Systems and Department of Studies and Projects for Urban Rail Systems. Functions and powers of relevant units for urban transport projects are regulated in Article 485 of the Presidential Decree No. 1 as follows:

- Examine projects and specifications of transport infrastructures written in subparagraph (a) to be conducted by municipalities, special provincial administrations, natural and legal persons or have them examined and approve,
- Evaluate the demands of municipalities, special provincial administrations relating to establish telpher, funicular, monorail, metro and urban rail transport system and submit the appropriate ones to the permission of the President,
- Examine projects and specifications of telpher, funicular, monorail, metro and urban rail transport system to be established by public agencies, municipalities, special provincial administrations, natural and legal persons or have them examined and approve,
- Determine the standards of transport infrastructures, telpher, funicular, monorail, metro and urban rail transport system written in subparagraph (a) and relevant unit prices,
- Prepare, examine and carry out plan, project and programs of telpher, funicular, monorail, metro and urban rail transport systems and relevant facilities whose constructions are decided to be taken over by the President, in cooperation with relevant organizations and have them prepared, examined and carried out.

As it is seen, above-mentioned functions and powers mainly focus on design and construction stages of infrastructure projects and do not include a regulation relating to operation and service delivery of the projects.

When considered at local level, public transport services are mostly organized through Transport Coordination Centres (TCC) and Infrastructure Coordinating Centre (ICC) structures. As also examined in Chapter Two of the report, the Regulation on Coordination Centres of Metropolitan Municipalities issued on the basis of the Law No. 5216 on Metropolitan Municipalities regulates the working principles and procedures of TCCs and ICCs. Decisions adopted by TCC and ICC on co-investments and public transport are binding for MMs, other municipalities within MMs, public agencies, natural and legal persons within the boundaries of MMs.

TCC is constituted with the participation of metropolitan mayor and those to be appointed by relevant mayor, representatives of central government agencies, representatives of relevant chamber to be assigned by the Turkish Federation of Drivers and Motorists, metropolitan district mayors or their designees according to the meetings in which topics relating to their municipalities are discussed. Table 1 shows the member distribution of TCCs.

Table 1: Member distribution of TCCs

Metropolitan Municipality	Central Government	Professional Association	District Municipalities
<p>Metropolitan Mayor and Person to be Appointed by Relevant Mayor (as President of TCC)</p> <p>A maximum of eleven people to be appointed by MMs at least at the status of branch manager from office and enterprises as well as their affiliated entities relating to transport and investments</p>	<p>Ministry of National Defense (MoND),</p> <p>Ministry of Family, Labour and Social Services (MoFLSS),</p> <p>MoEU,</p> <p>Gendarmerie General Command,</p> <p>Turkish National Police,</p> <p>Coast Guard Command (in MMs having sea within their boundaries),</p> <p>General Directorate of Highways,</p> <p>General Directorate of TCDD Transport Inc.,</p> <p>General Directorate of Transport Services Regulation,</p> <p>General Directorate of Infrastructure Investment,</p> <p>General Directorate of State Airports Authority,</p> <p>Department of Disaster and Emergency Management</p>	<p>Member of relevant chamber to be assigned by Turkish Federation of Drivers and Motorists</p>	<p>A member for transport-related issues that concern his/her own municipality, occur under the jurisdiction of his/her municipality and start and end within the boundaries of municipality</p>

TCC is structured in a way to have right and powers to adopt highly directive decisions on transport, traffic and public transport and implement or have them implemented as well as establish necessary facilities or have them established and operate in accordance with relevant legislation for coordinated execution of all kinds of transport services through road, sea, lake, river, channel and railways in MM. In this regard, as included in Article 18 of the Regulation, TCC is mandated and entrusted with the following points in order for effective and coordinated execution of public transport services within MM.

- Take necessary measures to provide traffic order and safety within the boundaries of MMs,
- Take necessary decisions and measures to prepare and implement metropolitan transport plan through land use and transport planning works in the framework of master plan within the boundaries of MMs and adjacent area,
- Take measures regarding infrastructure services to provide smooth traffic flow and solve traffic-related issues,
- Determine the numbers, fares and schedules, location of stops and time and route plans of shuttle vehicles, public transport vehicles and taxis operated on all types of transport infrastructure,
- Identify locations of stops for buses, taxis, public minibuses and shuttle vehicles,
- Determine the working mode and conditions as well as technical characteristics of passenger and goods vehicles and non-motor vehicles that will be used for commercial purposes within the boundaries of municipality in terms of traffic order and safety without prejudice to legislative provisions of road transport,
- Determine the places and routes of operation and numbers of said vehicles, grant permission and business licenses,
- Adopt directive decision and build opinion on the implementation in accordance with the power granted to MMs through transport, public transport and traffic legislation within the boundaries of MMs.

Table 2 shows the member distribution of ICCs.

Table 2: Member distribution of ICCs

Metropolitan Municipality	Central Government	Private Sector	District Municipalities
Metropolitan Mayor and Person to be Appointed by Relevant Mayor (as President of ICC) A maximum of ten people to be appointed by head of department of technical affairs in MMs and metropolitan mayor at least at the status of branch manager from municipality and	MoND, General Directorate of Highways, General Directorate of State Hydraulic Works, General Directorate of Infrastructure Investment, General Directorate of State Railways, Turkish National Police, Turkish Electricity Distribution Corp.,	Private organization which makes investment in a way that will affect infrastructure services of municipality and is determined by municipality	Metropolitan district and first-tier mayors or a member to be appointed by them for meetings in which topics concerning their municipalities are discussed

enterprises as well as their affiliated entities	Urban Electricity Distribution Corp., Petroleum Pipeline Corp.		
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The functions and powers of ICC are as follows:

- Create final programs by consolidating draft programs to be implemented in accordance with development plans and annual programs for infrastructure investments to be made within municipalities by investor public agencies as well as private organizations.
- Ensure superstructure programs and works and coordination for the preparation of infrastructure programmes and consolidation and finalization of draft designs. Include in the joint program those that should be carried out by more than one organization and institution in final programs.
- Create an account under the name of “Infrastructure Investment Account” to conduct infrastructure services included in the joint program as appropriate for purpose.
- Determine a programme through which to ensure that investments which are not included in the joint program will be carried out from own budgets of each Ministry, relevant metropolitan, district and first-tier municipalities and public agencies and supervise whether this program is being implemented.
- Ensure the accommodation of facilities that have been previously established in areas by relevant organizations without land development plan before the completion of road construction works that are suitable for new land development planning status.
- Determine the dates of excavation, authorize metropolitan mayor or ICC unit manager for emergencies on dates when excavation is not allowed.
- Grant permit and license for excavation to natural and legal persons who will make excavation relating to infrastructure and determine the relevant cost.
- Determine standards for materials to be used in urban area by all organizations participating in ICC.
- Cooperate with TCC when required.

In addition, contracts signed between private enterprises and municipalities that will provide public transport service constitute a base in the regulation and supervision of public transport services in addition to TCC and ICC. In these contracts, it is possible to regulate the criteria for standard, quality and price of service to be delivered as well as public transport services to be provided by service providers in the private sector in a certain framework.

3.4. Overview of Public Transport Systems

Table 3 presents provincial Gross Domestic Product (GDP), provincial GDP per capita, population and length of urban rail system in 30 MMs included in metropolitan status in Turkey. In Turkey, while approximately 85.2% of GDP is generated in MMs, 31.7% is generated in Istanbul. In addition, while Istanbul, Ankara and Izmir have respectively the highest GDP, it is observed that Van, Erzurum and Ordu have the lowest GDP. The rate of population of MMs in total population is 77.9% and an average metropolitan population is more than 2.2 million people. It stands out that while Ankara is the most crowded city following Istanbul with the population of 15.5 million, Erzurum has the smallest population with 758,279 people. In addition, it observed that the populations of Malatya, Mardin, Ordu and Trabzon are considerably close to the population of Erzurum.

In 2019, while GDP per capita was 7,928 USD in Turkey, only 12 MMs were above the average of Turkey. Among MMs, respectively Şanlıurfa and Van had the lowest GDP per capita with 3,075 and 3,294 USD. In addition to above-mentioned provinces, it is observed that the provinces with the lowest GDP per capita include Diyarbakır with 4,163.9 USD; Mardin with 5,082.8 USD; Erzurum with 5,324.4 USD; Ordu with 5,330.0 USD; Malatya with 5,357.4 USD and Hatay with 5,617.3 USD. On the other hand, Istanbul with 15,285.1 USD and Kocaeli with 14,304.1 USD were respectively the top two provinces in terms of GDP per capita. When the indicator for the length of urban rail system is examined, it is observed that entire rail system line at the total length of 782 km located across Turkey was already included in 12 MMs which have metropolitan status before the enactment of the Law No. 6360. Indicators regarding infrastructure and business management used by MMs in urban transport could not be included because relevant indicators are not published on provincial basis. In addition, a total of 25,658 buses provides public transport service in MMs, of which 12,810 are municipal buses and 12,848 are privately-owned public buses (Deveci, 2021).

Table 3: Basic Socio-Economic and Public Transport Indicators in Metropolitan Municipalities

	GDP (000 TRY, chained volume, 2019)*	GDP per capita (USD, 2019)*	Population (2020)**	Length of Urban Rail System***(km)
Adana	33,480,819	6,484.1	2,258,718	14
Ankara	165,734,057	12,507.8	5,663,322	101
Antalya	62,081,012	10,677.1	2,548,308	46
Aydın	17,595,093	6,672.1	1,119,084	-
Balıkesir	22,439,337	7,801.5	1,240,285	-
Bursa	70,360,957	10,382.2	3,101,833	48
Denizli	19,066,655	8,193.7	1,040,915	-
Diyarbakır	17,036,653	4,163.9	1,783,431	-
Erzurum	9,648,778	5,324.4	758,279	-
Eskişehir	20,207,229	9,792.5	888,828	40
Gaziantep	30,430,088	6,627.1	2,101,157	22
Hatay	18,542,725	5,617.3	1,659,320	-
Istanbul	561,275,034	15,285.1	15,462,452	233
Izmir	106,382,872	10,663.4	4,394,694	177
Kahramanmaraş	15,233,753	6,006.0	1,168,163	-

Kayseri	24,476,840	7,785.4	1,421,455	34
Kocaeli	60,500,444	14,304.1	1,997,258	10
Konya	37,753,980	7,201.1	2,250,020	28
Malatya	10,008,404	5,357.4	806,156	-
Manisa	28,858,384	8,711.0	1,450,616	-
Mardin	10,014,022	5,082.8	854,716	-
Mersin	32,632,964	7,639.8	1,868,757	-
Muğla	22,932,170	9,943.0	1,000,773	-
Ordu	9,682,056	5,330.0	761,400	-
Sakarya	20,436,966	8,762.1	1,042,649	-
Samsun	19,140,731	6,128.3	1,356,079	29
Şanlıurfa	14,761,318	3,075.5	2,115,256	-
Tekirdağ	28,889,855	12,465.6	1,081,065	-
Trabzon	12,507,772	6,571.0	811,901	-
Van	8,630,439	3,294.5	1,149,342	-
Turkey	1,772,231,904	9,212.7	83,614,362	782

References: * TURKSTAT, 2019a, <https://data.tuik.gov.tr/Bulten/Index?p=II-Bazinda-Gayrisafi-Yurt-Ici-Hasila-2019-33663>

** TURKSTAT, 2021b, <https://biruni.tuik.gov.tr/medas/?locale=tr>

*** Rail Turkey, <https://tr.railturkey.org/2020/10/20/hangi-sehrimiz-rayli-sistemlerde-ne-durumda-2020/2/>, Er. 08.04.2021

The number of passengers and municipal revenues using public transport system in MMs have considerably decreased during the pandemic period. There was a loss of passengers in public transport by 34-87% which varies on monthly basis between the date when the restrictions started and 01.06.2020 when controlled social life started (Deveci, 2021). In this regard, it is indicated in the following Table 4 total number of passengers of MMs for the period of January-July in 2019 and 2020. In comparison with 2019, it stands out that the number of passengers especially in April and May in 2020 decreased respectively by 87.2% and 84.4%.

Table 4: Number of Passengers of Public Transport Systems in Metropolitan Municipalities (Deveci, 2021)

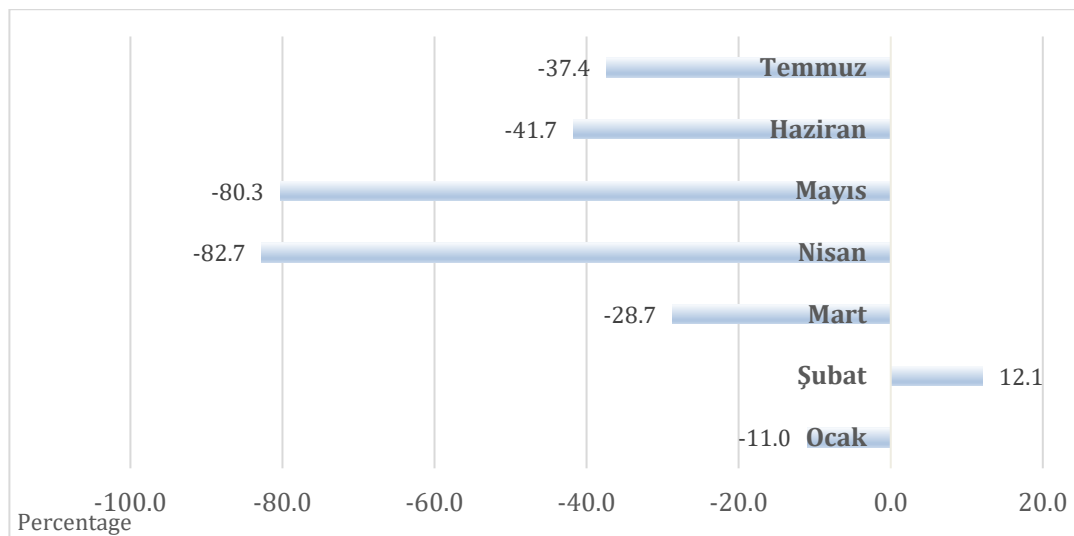
	Million passengers										
	Municipal Bus		Privately-owned Public Bus		Rail Systems		Seaway Vehicles		Total		Change (%)
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019-2020
January	152.6	161.9	107.8	128.5	110.0	127.1	4.6	7.4	375.0	424.9	13.3
February	152.3	163.3	105.8	126.9	107.8	125.0	4.5	7.2	370.4	422.4	14.0
March	175.2	111.2	121.2	86.3	128.9	79.1	5.3	5.4	430.6	282.0	-34.5
April	169.0	23.2	120.1	17.8	127.9	12.3	5.4	0.5	422.4	53.8	-87.3
May	165.4	26.9	117.3	20.1	123.1	16.3	4.9	0.7	410.7	64.0	-84.4
June	133.8	72.1	104.0	55.0	109.2	51.7	6.1	3.5	353.1	182.3	-48.4
July	142.9	89.4	106.9	70.8	115.4	66.8	6.5	5.6	371.7	232.6	-37.4

On the other hand, in July 2020 when the restrictions were eased, the number of passengers in traffic decreased by 37% in transport by municipal buses, by 42% in transport by rail systems (metro, light rail system, tramway and suburban line) and by 14% in transport by seaway

vehicles in comparison with the same month of previous year. Accordingly, revenues obtained from passenger transport decreased approximately by 37% in the same period.

It would be appropriate to point out that revenue loss in question was lower when compared to previous months thanks to controlled normalization during summer. During April and May in 2020, a revenue loss of more than 80% occurred. It is indicated in Figure 1 the average monthly revenue change of MMs in comparison with 2019. On the other hand, in June and July, revenue losses decreased approximately to the level of 40% under the influence of controlled social life. During the period in question, the rates of revenue loss was 97% in Balıkesir, 91.57% in Konya, 91.5% in Aydın and 91.48% in Adana (Deveci, 2021).

Figure 1: Public Transport Revenue Loss in Metropolitan Municipalities (Deveci, 2021)



4. Regulations and Practices on Public Health in Public Transport

4.1. Standards and Regulations of Central Government and Local Administrations on Public Health in Delivery of Public Transport Services

As explained in Chapter Two, public transport has become an important field both in the Eleventh Development Plan and sectoral and thematic strategy papers. Accordingly, it is regulated in detail in laws and secondary legislation. On the other hand, while protection of public health in public transport services used by a large part of society is a field that is observed by municipalities mostly in operational processes as a component of public transport policies, there is no policy, strategy or special legislation prepared with a holistic view specific to this field and practices are formed in the framework of individual efforts as well as institutional capacity and competences of municipalities.

The COVID-19 pandemic has demonstrated the need to make regulations and create standards that will contain all components of transport system such as passengers, personnel, vehicles, common areas to be also implemented after the pandemic with a holistic approach and contributed to raising significant awareness in this respect. Due to lack of legislation and standards in question, this Chapter is prepared by referring particularly to interviews conducted with municipalities as well as answers to the set of questions addressed to municipalities and included in Annex-1. However, the answers of municipalities mostly include practices specific to the pandemic period, which emphasizes the need for the determination of standards as well as risk planning and management in this field.

Functions and responsibilities of institutions regarding public health in public transport are basically laid down with Presidential Decrees and Directives of MoI at central level and by Resolutions of Provincial Medical Boards at local level.

Independently from the pandemic, the municipalities are asked if there are guidelines or standards prepared by relevant public institutions or municipalities regarding the protection of public health in public transport services in addition to measures taken under COVID-19 pandemic to be able to detect awareness on public health in public transport and practices in this field. It is understood from the answers received that there is no regulation or guidelines in this respect and accordingly, the need for the determination of national standards in this field is also strongly emphasized by municipalities.

On the other hand, it is also understood that municipalities have adopted many decisions for the protection of public health regarding issues of requirements for vehicle licensing in the operation of public transport systems, occupational safety and health requirements, sanitation and ventilation of vehicles, sanitation of stops as well as these points are also mentioned in municipal regulations on public transport. However, the fact that these points are not expressed in answers points out the problem about awareness and disorganization in this field.

It is known that some municipalities have the certificate of “EN 13816 Service Quality Management in Passenger Transport” in accordance with the standards laid down by

European Union in fields such as customer satisfaction, hygiene, quality, efficient, personnel training etc. to evaluate service quality in public transport and it is known that some other municipalities are resuming their studies on this matter. In this context, it is understood that even if limited, there are measures and practices regarding public health, however they are not standardized with a systematic approach and mostly developed in parallel with needs which have emerged during the pandemic period.

The fact that standards regarding passengers, personnel providing service delivery, common areas and vehicles are not laid down clearly appears as the main field of problem experienced in practice. This field has gained importance with COVID-19 pandemic and it is observed that most of the standards and accordingly division of functions at central and local level are determined according to needs emerging in crisis period with a reactive approach without any planning and projection. In interviews conducted with MMs, problems which appeared along with the pandemic were especially emphasized among other problems experienced in the implementation of standards for public health. Fields of problem such as the resistance of passengers against restrictions and insufficient institutional capacity were also brought up in interviews conducted with municipalities. In this regard, information relating to practical difficulties caused by pandemic will be elaborated in Chapter Five.

On the other hand, while not especially regarding fields of public transport or public health, there are technical standards currently determined by the Turkish Standards Institute (TSE) in the fields of public transport vehicles, stops and stations, evaluation and follow-up of service quality, sanitation, ventilation systems, medical waste management etc. However, there are many fields that are not yet standardized by TSE regarding the protection of public health in public transport systems.

One of the most important components in the protection of public health in public transport is the design of payment system and it is observed that this field is regulated as more systematic and standardized in comparison with other components. It is highly significant for public health to design and operate payment systems in order to minimize the contact passenger and personnel with each other and Money. In addition, personalized payment systems help facilitate monitoring and evaluation as well as detect and monitor patients or risky people.

As of 2020, there is electronic toll collection system in public transport of all 30 MMs in which 77.9% of the population of Turkey lives (Deveci, 2021). However, there is inter-municipal differences in terms of components (municipal buses, rail systems, water transport, privately-owned public buses, minibuses etc.) integrated to these systems as well as municipalities conduct studies on the elimination of money exchange by extending the scope of contactless payment systems to include also private transporters.

It is stated in interviews conducted with municipalities that transport cards are widely used for contactless payment. For example, cash usage is completely eliminated in municipal buses, metro, Ankaray, telpher, privately-owned public buses and Başkentray included in electronic toll collection system in Ankara. Similarly, there are ongoing studies for the termination of cash usage in Kocaeli in 2021.

Enabling online credit loading in payment systems as well as increasing the number of options such as contactless credit cards, payment through cell phone with QR code in addition to

transport cards of municipality has an effective role in reducing contact in public transport. In this regard, such practices are increasingly getting popular in municipalities.

4.2. Occupational Safety and Health Practices

Those employed in public transport services encounter health risks due to occupational reasons such as vibration, high sounds, inhaled chemical materials that are hazardous for health such as exhaust gas, long sitting duration, night shift and it is aimed to reduce or prevent such risks by developing rules for occupational safety and health (OSH).

Municipalities have established their organization as coordination centres, directorates etc. in charge of OSH and OSH boards in the framework of the Law No. 6331 on Occupational Safety and Health and by using guideline of “Occupational Safety and Health in Municipalities” prepared by MoFLSS and accordingly carry out risk analyses, training, exercises and inspections in accordance with the legislation. In this regard, actions are taken in the framework of Law in the field of public transport however it is understood that there is no guidelines or directives prepared by the municipalities according to their operations.

In addition, it is stated that “Occupational Safety and Health Instructions” including all units and sub-contractors, employees, trainees and visitors as well as all other stakeholders is under being prepared by Directorate of Occupational Safety and Health under General Directorate of EGO in Ankara MM among the municipalities interviewed and there will be regulations specific to public transport in the relevant Instructions.

4.3. Inspection and Sanctions

Inspection procedures in public transport systems are mostly determined and implemented in accordance with the contracts executed in the framework of public transport regulations prepared by the municipalities and with private operators on the basis of legislations such as the Law No. 5216 on Metropolitan Municipalities, Law No. 5393 on Municipality, Law No. 2918 on Road Traffic, Law No. 4925 on Road Transport, Law No. 1593 on Public Health as well as Law No. 5326 on Misdemeanours etc. which regulate functions and powers of municipalities in public transport and are discussed in Chapter Two of this study.

Municipalities remotely monitor public transport systems through in-vehicle cameras and vehicle tracking systems in terms of compliance with both traffic rules and OSH rules and additional public health rules adopted due to the pandemic. In addition, there are on-site inspections conducted by units in charge of public transport, municipal police units and law enforcement forces. Under pandemic conditions, teams from Provincial and District Directorates of Health also participate in these inspections. While relevant dynamic public health inspections are mainly conducted in the coordination of Governorships, relevant municipal units also participate.

In addition to routine inspections, there are also site inspections that are unplanned and in which municipal officers do not introduce themselves as well as notice and complaint mechanisms relating to public transport in municipalities. In case of non-compliance with rules, penalties to be implemented will be determined in the framework of directives prepared by municipalities and contracts executed.

A question is addressed to municipalities in order to understand the additional powers and responsibilities which they consider that they should be granted to them regarding practices and inspections for public health in public transport. In this regard, it is emphasized that it is necessary for the municipalities to create a national guideline or standards especially for public health and clarify powers and responsibilities. In addition, it is expressed that inspection teams of municipalities experience difficulties in case of penal action in accordance with the Law No. 5326 on Misdemeanours and it is also stated that participation of law enforcement forces will facilitate these studies.

5. Response to COVID-19 Pandemic: Crisis Management and Response

Public transport has been one of the fields which are affected from COVID-19 pandemic. While municipalities had to take measures determined by relevant authorities or themselves in order to reduce the speed of infection on one hand, on the other hand they encountered with significant revenue losses as a result of diminishing demand for public transport.

Measures taken against the pandemic were fundamentally implemented to improve sanitation and ventilation in public transport vehicles and stops/stations, ensure sufficient distance among passengers by reducing the capacity of vehicles by managing demand and prevent individuals at risk from using public transport vehicles.

Main regulations on the protection of public health in public transport due to the pandemic are prepared by MoH, Mol and provincial public institutions. Relevant regulations are described as follows.

5.1. MoH COVID-19 Pandemic Management and Practice Guide

“COVID-19 Pandemic Management and Practice Guide”, which was published and most recently updated on 01.10.2020 by MoH in order to provide pandemic management in the flow of Daily life such as all kinds of businesses, social areas, training, transport, health services across the country, is considered as the main guide which indicates measures to be taken in urban public transport. In Chapter 14 of the guide, measures to be taken in urban transport vehicles (minibus, public minibus, privately-owned public bus, municipal bus and others) are determined as follows in terms of drivers, passengers and vehicles:

Measures to be taken for drivers

- Drivers should be informed on COVID-19 by relevant chambers/unions of profession.
- Drivers who have COVID-19-related symptoms (fever, cough, nasal flow, shortness of breath) should not work and go to health institution.
- Drivers should comply with social distancing rule while waiting in the queue at final stops.
- Drivers should act in compliance with personal hygiene rules and definitely use mask inside the vehicle. Drivers may be allowed not to wear mask in vehicles with transparent barrier shields between driver and passengers.
- Masks should be changed when moistened. One should take off the mask by holding its elastic bands, not touch its exterior surface and wear also by holding elastic bands. Used masks should be thrown in tied waste bag. It is necessary to use hand sanitizer while changing mask.
- In order to reduce hand contact while making payment in these vehicles, money should be exchanged through a box.
- It is necessary to comply with measures to be taken at stops, commercial taxi stands with a closed rest area for drivers.

Measures to be taken for passengers

- Passengers should comply with social distancing rule while waiting in the queue.
- Passengers should comply with social distancing rule while getting on and off the vehicles.
- All passengers getting on the vehicle should wear masks and not take off during travel.
- Passengers who are not wearing any mask should not be admitted to vehicles.
- Passengers should be admitted to vehicles according to the number of seats, standing passengers should not be admitted at all.
- Only two of four face-to-face seats should be used by sitting diagonally as not being face-to-face. There should be special regulations regarding seating rules and social distancing for vehicles of different features or specifications. There should be alcohol-based hand sanitizer or eau-de-cologne containing at least 70% alcohol in vehicles to be enough for the use of each passenger getting on the vehicle. Accordingly, each passenger should use hand sanitizer or eau-de-cologne when s/he gets on the vehicle.
- Passengers who have COVID-19-related symptoms (fever, cough, nasal flow, shortness of breath) should not be admitted to the vehicles and directed to health institution.
- No one should speak or yell in the vehicle as it will cause droplets.
- No one should consume food and beverage including water in the vehicles unless utterly necessary.

Measures on ventilation, sanitation and disinfection in vehicles

- Internal air circulation button of vehicles should be shut-off.
- Maintenance for air conditioner filter of vehicles should be conducted regularly.
- Windows should be opened whenever possible and thereby the interior air of the vehicle should be cleaned.
- General internal cleaning of vehicles should be done with water and detergent at the end of the day.
- Interior surface of the vehicle should be wiped with water and detergent.
- After the completion of each trip between first and last stop, frequently touched surfaces (door handles, armrests, handles, window operation switches, seat belt buckles) should be in priority cleaned with water and detergent, then disinfected with 1% diluted bleach or at least 70% alcohol. For this purpose, it is possible to use disinfectant licensed by MoH. Doors and windows should be open while cleaning the vehicle. The vehicle should be cleaned when there are no passengers inside and ventilated for one minute after disinfection.

It is stated in the rules adopted for drivers that it is necessary to comply with measures to be taken at stops, commercial taxi stands with a closed rest area for drivers. In this regard, the following points regarding taxi stands are included in Chapter 13 of the Guide regulating general rules that should be followed in commercial taxi stands:

- Information on COVID-19 should be provided in commercial taxi stands and posters relating to rules on COVID-19, hand washing, wearing mask should be posted at stands.
- Social distancing (3-4 steps, 1 metre) should be preserved in commercial taxi stands.
- Drivers should not be allowed to work when they have fever, cough or respiratory distress, are infected with COVID-19 or have contacted with COVID-19 patient in the last 14 days.
- Cleaning of commercial taxi stands should be done with water and detergent on a daily basis.
- It is necessary to pay special attention to the cleaning of frequently touched surfaces (door handles, armrests, handles, window operation switches, seat belt buckles) in the stand. For this purpose, after cleaning with water and detergent, it is possible to use 1% diluted (half a small tea glass of bleach for 5 litres of water) bleach (sodium hypochlorite Cas No: 7681-52-9) or at least 70% alcohol. It is necessary to use 1% diluted bleach (sodium hypochlorite Cas No: 7681-52-9) to clean toilets in the stand.
- Bleach should be used when nobody is inside and then the stand should be ventilated until dry and odour-free.

In a similar way with rules in urban transport vehicles, there are also regulations for commercial taxi passengers and vehicles relating to the use of mask, cleaning, disinfection and ventilation.

5.2. Regulations on Public Transport in Mol Directives

At the onset of the pandemic, it was provided in Mol Directive of 23.03.2020 that all urban public transport vehicles would admit 50% of their passenger capacity defined in vehicle license and the scope of the regulations was extended to include employee shuttle vehicles on 26.03.2020. Removed in June 2020 according to the course of pandemic, this restriction was re-introduced by the Directive of Ministry on 14.04.2021.

Another important regulation issued by Mol is the directive published on 30.09.2020 for HES code query. Accordingly, it is required to provide necessary integration between “Hayat Eve Siğar” (HES) application of MoH and personalized electronic/smart transport cards to be used in all kinds of urban public transport vehicles operated by relevant organizations/institutions especially municipalities in order to prevent people at risk from using public transport services. In addition, it is provided in the directive that relevant organizations/institutions and local administrations especially municipalities should start necessary studies on urban public transport cards that are not yet personalized in order to personalize electronic/smart transport card systems.

Moreover, provincial pandemic centres are established in accordance with the decisions of Mol and these centres are assigned to make inspections planning according to decisions adopted in Provincial Health Boards, provide coordination of neighbourhood inspection and workplace inspection teams and forward incoming notice and complaints to relevant inspection teams.

5.3. Resolutions of Provincial Health Boards

In the framework of Directives of MoI and in addition to the guide prepared by MoH, measures to be taken on provincial basis are laid down by Provincial Public Boards. Relevant measures are updated according to the course of pandemic and Directives of MoI. It is observed in accordance with rules laid down by Provincial Public Boards that following measures are taken by MMs in different provinces relating to public transport:

- Restrictions in passenger capacity of vehicles: Admit 50% of the passenger capacity specified in vehicle license in public transport vehicles
- Make seating arrangement of passengers in the vehicle in a way to prevent contact among them: In case of face-to-face seating arrangement, sit diagonally by leaving one seat empty on each line in order to not to come face-to-face
- Restrictions in capacity of standing passengers: Do not admit standing passengers in urban transport vehicles in which it is not possible to comply with physical distancing rules in terms of internal volume; allow sitting as much as the seating capacity of wagon and admit standing passengers by 50% of standing passenger capacity in rail system vehicles (metro, tramway etc.); allow sitting as much as the seating capacity written in vehicle licenses and admit standing passengers by 30% of the standing passenger capacity written in vehicle licenses in a way that physical distance will not break the rules in public transport vehicles which are standing passenger-weighted such as buses whose seating capacities are reduced/removed etc.
- Place information signs relating to passenger capacities in a visible way
- Restrictions for certain age groups: Do not admit citizens who are under 18 years of age and/or over 65 years of age to public transport vehicles
- Clean and disinfect vehicles at certain intervals
- No smoking at stops
- Increase the number of trips to reduce density in vehicles.

5.4. Additional Measures Taken by Municipalities and Problems Experienced in Practice

In the set of questions for MMs, there are questions relating to measures taken in addition to measures included in above-mentioned MoH COVID-19 Pandemic Management and Practice Guide and determined by MoI as well as Provincial Health Boards and problems experienced in compliance with the measures.

In this respect, while some municipalities create pandemic boards which gather stakeholders and prepare action plans as a response to pandemic, it is observed that measures stand out rather in the framework of operational measures relating to providing social distancing in vehicles and sanitation. Accordingly, some practices carried out such as placing transparent barrier shields to provide isolation between passengers and driver, setting tapes to preserve social distancing in necessary places at stations, making markings on the ground to preserve social distancing among passengers, placing hand sanitizers in vehicles and at stops, providing masks, continuous follow-up for use of capacity in vehicles, organizing shifts of drivers in a

way to reduce contact, arranging ventilation in a way to prevent internal circulation and use clean air from outside, hanging informative posters etc.

Demand management is one of the most important factors to provide social distancing in public transport systems. Even though, management of transport demand requires a long-term planning for transport infrastructure and collective use of push-pull policies in the junction of urban development, spatial use and transport policies with a holistic approach, it is observed that measures are taken to increase number of trips at peak hours, determine flexible trip hours by continuously monitoring demand and encourage non-motor transport (especially bicycle and walking) in order to adapt to restrictions for number of passengers in the short term in pandemic management. However, it is understood that the most effective measure in the formation of a more sporadic (dispersed during the day) demand structure during pandemic period is staging of working hours with governor's decision in provinces through regulations on flexible working hours of public and private sector employees.

Municipalities experience operational difficulties in complying with restrictions for passenger capacity during certain periods. Even though the passenger capacity is restricted as 50% during these periods, it is necessary to use 25%-35% of total capacity to be able to provide recommended social distancing as 1-1.5 metres. This rate is reported as 18% for Istanbul (UMT, 2020).

On the other hand, major decrease experienced in revenues of public transport due to diminishing passenger demand during pandemic period constitutes an important field of problem for municipalities. As previously mentioned, the number of passengers in public transport systems of MMs during 3-month period between the beginning of pandemic and July 2020 when measures were eased decreased by 34 to 87% year-on-year (Deveci, 2021). According to the information obtained from MMs under the study, in 2020 there was loss of passengers up to 70% in comparison with 2019. This decrease in passenger demand contributed in terms of reducing densities and providing social distancing, however, revenue losses constituted a significant pressure in terms of improvement if service quality and fiscal sustainability.

Another problem experienced is that HES code that is made obligatory in accordance with Mol Directive and applications to control passengers' risk position are not implemented effectively in practice because passengers may use more than one transport card and HES code. Municipal officers are not authorized on this matter; however, in suspicious cases, law enforcement forces are called in to take action, which causes slowdown and disruptions in service. The other fields of problem voiced by municipalities according to the course of pandemic are the need for making expeditious decisions and difficulties in coordination, resistance of passengers against transition to contactless payment systems and lack of institutional capacity.

6. Conclusion and Evaluation

Due to the growing population, spatial density of population in certain regions and rapid urbanization, the need is gradually increasing for expansion of economic, accessible, quality, safe, sustainable urban public transport systems. Accordingly, strategic plans of organizations such as relevant ministries and municipalities relating to public transport policies, higher national policy documents, sectoral and thematic strategies have an important place and, in this respect, this field is discussed with priority, in detail and dynamically.

On the other hand, there is no policy, strategy or legislation prepared with a holistic approach in the protection of public health in public transport systems and this issue is generally discussed in strategic plans and emergency action plans of municipalities. This field is created in the framework of individual efforts as well as institutional capacity, source and competences of municipalities as a field that is mostly observed with a reactive approach in operational processes by municipalities.

Practices and measures relating to public health in public transport stand out with COVID-19 pandemic and lack of awareness and holistic approach experienced in this field displays lack of regulations on practices for both passengers and personnel and places such as vehicles and stations. It is observed in the process of this study that relevant municipalities concentrate of new practice and needs generating with decisions adopted through pandemic.

The following is a summary of the main points identified in fact-finding meetings conducted with representatives of MMs and central agencies, analysis of answers given to semi-structured questions addressed to municipalities, comprehensive legislation scanning, examination of literature as well as international policy documents, standards and practices:

- Many ministries and municipalities have responsibility in public transport and relevant field is regulated by many laws and regulations. Not having a single and strong central authority in terms of regulating and decision-making reveals deficiencies in terms of planning, standardization, implementation, inspection and predictability. For this reason, there is a need for a central regulatory authority and framework law in public transport.
- There are risk analyses conducted on public health in public transport and this field is not observed separately in emergency action plans. Considering both the fact that public transport is one of the fields that will be most affected during emergencies such as earthquake, flood, fire, pandemic etc. and its role in maintaining mobility and transporting first aid in disasters and emergencies, it is significant to include the protection of public health in emergency action plans and create necessary coordination mechanisms.
- While municipalities adopt and implement many operational decisions on public health in public transport systems, there is no guiding standard or guides prepared by relevant institutions or municipalities to cover personnel, passengers, common areas and vehicles in this field.
- While not specifically relating to fields of public transport or public health, there are technical standards currently established by the Turkish Standards Institute (TSE) in

the fields of public transport vehicles, stops and stations, evaluation and follow-up of service quality, sanitation, ventilation systems etc. However, there are many fields that requires to be standardized by TSE.

- The Law No. 6331 on Occupational Safety and Health and relevant legislation are implemented by municipalities however, there is no standard or guides prepared particularly for public transport systems.
- It is observed that there is no sufficient level of principles, procedures and sanctions on monitoring and inspection. While clarifying standards and guides as well as implementation processes, it is significant to determine monitoring and inspection processes, functions and responsibilities of institutions as well as coordination mechanisms and sanctions.

In this respect, it is important to determine standards in the scope of a strategy in public health in public transport systems and integrate relevant standards to planning, implementation and monitoring processes in order to act with a planned and predictable approach, increase efficiency by providing unity, coordination and facility in practice with an inter-institutional common approach and not only protect but also improve public health in long term by providing opportunity for monitoring, follow-up and evaluation.

Accordingly, effective, guiding and applicable standards will be developed relating to the protection of public health in public transport by using analyses and detections, international standards as well as information obtained through the examination of country practices in comparative analysis report and interviews and workshops to be conducted with municipalities. It is aimed to determine standards with a holistic approach to be implemented in all components of public transport systems such as passenger, personnel, vehicles etc. and covering all steps of planning and coordination, implementation, training, raising awareness and monitoring. In this respect, fundamental standards expected to be met in different public transport options in all MMs will be presented and in the next stage, workshops will be conducted and implementation guides will be prepared with selected municipalities in order to implement relevant standards in planning and implementation processes of MMs.

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Annex-1: Set of Questions Addressed to Municipalities

1. Which public transport services are delivered in your municipality's jurisdiction and responsibility? Which units (directly by municipal administrations, through municipal companies, by private sector etc.) deliver these services? What is the share of public transport (including paratransit) in total travel and distribution of sub-types (bus, metro, tramway etc.)?
2. How are the functions and responsibilities of institutions determined on public health in public transport? What are the practices conducted in this field at local level and in coordination with relevant public organizations of institutions of your municipality?
3. Is risk assessment conducted regularly on public health in public transport and are special needs of vulnerable groups considered in risk assessment? Do you receive feedbacks of your employees in these assessments and measures determined? Do you evaluate the effectiveness of measures?
4. Are there are guides/standards that you implement to provide occupational safety and health for public transport?
5. In addition to measures taken under COVID-19 pandemic, are there any guides/standards/regulations prepared by relevant public institutions or your Municipality in order to protect public health in public transport services (including privately-owned public buses, paratransit systems etc.)? If yes, could you explain in the framework of following headings? If not, in which areas do you particularly need standards development?
 - a. Practices relating to personnel in charge
 - b. Practices relating to passengers
 - c. Vehicles
 - d. Stops/stations and waiting spots
6. Can measures included in COVID-19 Pandemic Management and Practice Guide published by the Ministry of Health be implemented? Could you describe which measures are taken by your Municipality in addition to these measures (reorganization of working spaces, public spaces and/or public transport operation model, crowd control and management etc.)?
7. What are the decisions adopted by Provincial Health Board on public transport in your city during pandemic process and can they be implemented?
8. Which special regulations/measures are implemented for vulnerable groups in the scope of public health in public transport?
9. Do you have "EN 13816 Service Quality Management in Passenger Transport" under public transport services of your municipality? If yes, what are the contributions of having this standard to you in terms of public health?
10. What kind of training courses are provided to the personnel regarding measures for public health?
11. What kind of practices/methods are used to raise awareness of passengers?
12. Are there any policies/measures relating to the protection of public health in public transport in the strategic plan and/or transport plan of your municipality? If yes, could you describe these policies and measures?

13. Could you describe if you have taken any measures to shift the demand for public transport to off-peak hours and for a more sporadic (dispersed during the day) demand structure?
14. Which components (municipal buses, privately-owned public buses, metro etc.) are integrated in contactless payment systems used by your municipality and what is their usage rate in total passengers? Is it possible to make online credit loading to transport cards? Do you implement any policy (pricing etc.) to expand their usage?
15. What kind of a procedure is monitored for the inspection of public transport system (including paratransit and shuttle vehicles)? Are there any inspection procedures and sanctions determined in terms of compliance with standards? Are there any directives in this context? If not, what kind of a standard do you recommend?
16. What is the level of number of passengers, operating revenue and cost in public transport system in 2020 in comparison with the previous year?
17. What are the main fields of problem experienced in the implementation of measures relating to public health? (Unclear determination of standards, lack of legislation, lack of institutional capacity and inspection, lack of coordination, not being able to prioritize relevant issue, resistance of passengers, budgetary limits etc.) What are your recommendations for the solution of relevant problems including standards development?
18. Are there any guidelines or directives predicted to be implemented in action plan or process relating to transport services under emergencies and/or crisis situations? (Are there any protocols, predetermined standards in your city that are currently followed to provide coordination with institutions such as Governorship, AFAD, provincial directorates of relevant ministries, Provincial Health Boards in such situations?)
19. What are your recommendations to redirect people to public transport by establishing trust in terms of public health in public transport systems?
20. Could you describe if there are any additional powers and responsibilities which you consider that they should be granted to your municipality regarding practices and inspections for public health in public transport?
21. Even though powers and responsibility regarding practices and inspections for public health in public transport are entrusted to municipalities, could you describe if there are any powers and responsibilities which you consider that they can be implemented more effectively by other public administrations (Ministry of Interior, Ministry of Health, Turkish National Police etc.)?
22. Is there a need for a central regulatory public transport authority/coordinator or organization/unit which will determine standards in public transport systems? If so, what should be the functions of relevant authority? Is there a need for a framework public transport law?

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