

POLITICAL AND LEGAL DOCUMENTS
FOR ENSURING SUSTAINABLE URBAN TRANSPORTATION:
A COMPARATIVE ANALYSIS OF USA, UK AND TURKEY

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ABSTRACT

POLITICAL AND LEGAL DOCUMENTS FOR ENSURING SUSTAINABLE URBAN TRANSPORTATION: A COMPARATIVE ANALYSIS OF USA, UK AND TURKEY

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Principle of sustainability, as in all areas, is becoming a major issue in urban transportation planning all around the world. Urban transportation political and legal documents are statutory basis of urban transportation plans and projects and developed countries have established urban transportation political and legal documents to ensure that local governments implement plans and projects in line with the sustainability principle. In this thesis, it is intended to analyze the sufficiency of central government's political and legal documents on urban transportation in Turkey in realizing the sustainability of urban transportation plans and projects. For this aim, political and main legal documents of sustainable urban transportation in United States of America (USA) and United Kingdom (UK), which is accepted as one of the leaders in the world about sustainable transportation, are analyzed. Based on this analysis a checklist has been produced, highlighting headings for sustainable urban transportation that should be present in a country's political and legal

documents in order to guide and perhaps enforce local governments. Then this checklist has been applied to Turkey to determine strengths and weaknesses of political documents and legislations in Turkey with regards to sustainable urban transportation. A comparative analysis has also been carried out with Turkey, USA and UK under three main headings which are policy documents; guidance papers for local governments, acts and laws; and nation-wide studies. As a result, strengths and weaknesses about political and legal basis of sustainable urban transportation in Turkey have been illustrated and recommendations were made for Turkey to adopt guidance papers and legislations.

Keywords: Sustainability, sustainable urban transportation, policy documents, legislation on urban transportation.

ÖZ

SÜRDÜRÜLEBİLİR KENTSEL ULAŞIMIN SAĞLANMASI İÇİN POLİTİKA VE YASAL BELGELER: ABD, İNGİLTERE VE TÜRKİYE’NİN KARŞILAŞTIRMALI ANALİZİ

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Yüksek Lisans, Kentsel Politika Planlaması ve Yerel Yönetimler

Tez Yöneticisi: Doç. Dr. Ela BABALIK SUTCLIFFE

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Sürdürülebilirlik ilkesi, her alanda olduğu gibi, kentsel ulaşım planlaması alanında da, tüm dünya çapında önemli bir konu haline gelmiştir. Kentsel ulaşım politika ve yasal belgeleri, kentsel ulaşım plan ve projelerinin yasal dayanağını oluştururken, gelişmiş ülkeler kentsel politika belgeleri ve yasalarını sürdürülebilirlik üzerine oluşturmaktadır. Bu tezde, Türkiye’deki merkez hükümetin kentsel ulaşım planlamasının yasal dayanak ve politika belgelerinin sürdürülebilir kentsel ulaşım plan ve projelerini gerçekleştirmede yeterliliğinin araştırılması amaçlanmıştır. Bu amaçla, sürdürülebilir kentsel ulaşım konusunda Amerika Birleşik Devletleri (ABD)’nin ve dünyanın en önde gelen liderlerinden biri kabul edilen İngiltere (UK)’nin politika belgeleri ve başlıca yasaları incelenmiştir. Bu analize dayanarak, sürdürülebilir kentsel ulaşım konusu için bir ülkenin politika ve yasal belgelerinde bulunması gereken önemli başlıklar belirlenmiş ve bir soru listesi üretilmiştir. Daha sonra, bu liste Türkiye’nin sürdürülebilir kentsel ulaşım politika ve yasal

belgelerinin güçlü ve zayıf yönlerini saptamak için Türkiye'ye uygulanmıştır. Politika belgeleri; yerel yönetimler için kılavuz belgeler ve yasalar; ve ulusal çalışmalar olmak üzere üç ana başlık altında incelenerek Türkiye ile ABD ve UK karşılaştırmalı analizi yapılmıştır. Sonuç olarak, Türkiye'deki sürdürülebilir kentsel ulaşımın politik ve yasal dayanaklarının güçlü ve zayıf yönleri anlatılmış ve Türkiye kılavuz belgeleri ve yasalarının benimsenmesi için öneriler yapılmıştır.

Anahtar kelimeler: Sürdürülebilirlik, sürdürülebilir kentsel ulaşım, politika belgeleri, kentsel ulaşım yasaları.

To my parents...

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CHAPTER 1

INTRODUCTION

As cities have unavoidable traffic problems as well as air pollution and climate change associated with increased traffic, sustainable urban transportation becomes a more vital issue for cities. Sustainable urban transport can be described as a transportation system that considers environmentally friendly, economically efficient and socially equitable solutions, and therefore promotes clean and renewable energy sources, automobile reduction, public transport improvements, more walking and cycling, integrated transport, energy efficiency etc. Many studies carried out at different parts of the world and various reports written by national and international committees have defined a policy path to attain more sustainable urban transportation, in which public transportation, automobile reduction especially in city centers, increase in use of non motorized transportation modes, energy efficiency, travel demand management, integrated transport, CO₂ reduction, park and ride applications, car parking policy, congestion charging systems, use of vehicles with clean energy and low emission are considered.

Policies and legislations produced by the central (or federal) governments have been the focus of this study, however, the implementing authority of urban transportation projects are local governments. Therefore when analyzing the central government policies, the underlying objective was to assess whether policies and legislations at central government level were sufficient and effective in guiding or perhaps even forcing local governments to adopt sustainable urban transport policies.

In this thesis, the research question is whether or not the legislation and central government policy documents in Turkey are sufficient to guide local

governments towards creating sustainable urban transport systems and hence, whether they are sufficient to ensure sustainable urban transport systems in cities. This question was tried to be answered through comparisons with chosen developed countries, in terms of their policies and legislation for the implementation of sustainable urban transport policies.

The main aim of this thesis is to develop “A List of Criteria” in order to assess whether or not the general country wide political and legislative documents of a country supports sustainable urban transportation, and then to apply these criteria to Turkey to assess whether the current policy documents and legislations can ensure that local governments implement policies and projects for more sustainable urban transport systems. The analysis also aims to show the strengths and weaknesses of the Turkish policy documents and legislations in this respect.

The thesis begins with a review of the evolution of the concept of sustainability, sustainable transport and the evolution of transport policy which are described in Chapter 2. In this context, the supranational and national transport policy documents on sustainable urban transportation have been analyzed beginning from United Nations Stockholm Conference to European Union White Paper 2011. By investigating national and international reports, laws, guidance papers and study/conference proceedings and final declarations of developed countries, constitution of comparison of a comprehensive legal and policy framework on sustainable urban transport is aimed. Then the evolution of urban transport policy from road programs to traffic (travel) demand management has been studied. It is intended to show the change of perception of urban transportation from the 1950s to today and the likely urban transport policies and projects to be adapted from today onwards. Conventional and contemporary urban transportation planning have been described and then, the definitions of sustainability, sustainable development and sustainable urban transport, goals and instruments of sustainable urban transport have been explained.

At last, the need for a policy and legislation framework is discussed for the successful implementation of sustainable urban transportation.

In Chapter 3, policy and legislation documents of two developed countries have been analyzed in detail. United States of America (USA) and United Kingdom (UK), which are generally accepted as best-practice cases in the world for their well structured laws and guidance documents about sustainable urban transportation, are chosen also because of the easily attainable data, easy access to their documents and being well-known examples. Firstly, ten acts, one guidebook and two policy statements of USA are investigated in accordance with sustainable transportation. After that, three policy papers, two acts and two guidance papers of UK are analyzed in the same manner.

The main aim in analyzing policy and legal documents of sustainable urban transportation of the two countries is to constitute a set of criteria or a checklist of sustainable urban transport requirements in political documents and then apply these criteria to Turkey to assess whether the current policy documents and legislations can ensure the local governments to implement policies and projects for more sustainable urban transport systems. After the analysis of USA and UK, it was seen that it is possible to analyze policy and legislation documents in three main headings. These are as follows: Policy documents, Guidance Papers, Acts and Laws, and Studies. This process is expressed in Chapter 4, which describes methodology.

In Chapter 5, Turkey is studied under three main headings. First, all National Development Plans of Turkey are analyzed in detail in accordance with sustainable urban transportation. Then, Energy Efficiency Strategy for Turkey and Transportation Master Plan Strategy are investigated consecutively. After that, Integration of Sustainable Development Policies to Sectors which is published by UNDP and Integrated Urban Development Strategy (Kentges) and Turkey's Climate Change Action Plan are analyzed. In guidance papers, acts and laws part, general laws that are 3194 Development Law, By-Law on

Plan Making Principles, 5216 Greater Municipality Law, 5393 Municipality Law, By-Law on Energy Efficiency in Transportation are analyzed. Final part of this chapter belongs to national studies which are the Urbanization Congress and the Transportation Forum.

One of the main outcomes of this thesis, which is the analysis of central government policy documents and legislations in Turkey, is shown in this chapter in the “List of Criteria” Checklist format.

The last chapter contains the conclusions of the thesis study. The study concludes with policy suggestions and recommendations for the preparation of new acts and laws related to sustainable urban transportation after the summary of the research and main findings of the study.

CHAPTER 2

SUSTAINABLE TRANSPORT POLICY: THE CONCEPT OF SUSTAINABILITY AND THE EVOLUTION OF TRANSPORT POLICY

2.1. Introduction

Today the main objective of most supranational and national transport policy documents is to create more sustainable transportation and most urban transport plans aim at a more sustainable urban transport system. Therefore, this chapter introduces the concept and approaches of sustainable transport. First, the evolution of the concept of sustainability is described because it has a fundamental effect on transport policy. However, independent from the sustainable development arguments, transport policy has already been changing since the 1970s. Therefore, following the sustainability section, evolution of transport policy is described. The chapter concludes with a list of objectives and instruments of sustainable transport policy.

2.2. Evolution of the Concept of Sustainability and Sustainable Transport

In this section, the main aim is to present a review of the terms sustainability, sustainable development, and mainly sustainable transportation in order to layout the process of rise of sustainability in policy documents and agenda of developed countries. It is expected that these approaches will shed light on and provide a deeper understanding about policy, legislation and administration for sustainable urban transport, both for the case of Turkey and developed countries.

2.2.1. Supranational & International conferences and reports about sustainability and sustainable urban transport

Several documents have been prepared since the 1970s in order to show how to make settlements more sustainable. They also include a focus on one of the essential branches of sustainability, which is transportation. Chronological orders of the worldwide sustainable development and transportation events and policy papers are explained below. It can be said that the movement of sustainable development that gained momentum in the 1970s has increasingly dealt with sustainable urban transportation in the 1990s in order to attain a sustainable urban system from economic, social and ecological point of view.

2.2.1.1. UN Stockholm Conference, 1972

The United Nations Conference on Human Environment in 1972 in Stockholm was an important international event for the concept of sustainable development.

The international community met to consider global environment and development needs. The main headings of the conference were habitat degradation, toxicity and acid rain caused by the industrialized environmental problems. In addition to these, the conference stated that “the natural resources of the earth, including the air, water, land, flora and fauna, must be safeguarded for the benefit of present and future generations through careful planning or management” (UN 1972, principle no.2) and that “the capacity of the earth to produce vital renewable resources must be maintained and improved” (UN 1972, principle no.3).

2.2.1.2. Brundtland Report, 1987

World Commission on Environment and Development in 1987 produced a report named “Our Common Future”, which is known as the Brundtland Report due to the name of the expert leading the Commission. The report defined sustainability as the development that meets the needs of the

present without compromising the ability of future generations to meet their own needs. Sustainable development was born as a need to integrate environmental policies with development strategies. According to the Commission, in this report the term of sustainability contains two key points: the concept of needs which refers to equity and the idea of limitations by state to fulfill the environmental issues. It also emphasizes the economic and social points of sustainability in order to put the standard meaning of them all around the world and activate the other countries to start the progressive transformation.

2.2.1.3. The Future Development of the Common Transport Policy: A Global Approach to the Construction of a Community Framework for Sustainable Mobility, 1992

The Future Development of the Common Transport Policy: A Global Approach to the Construction of a Community Framework for Sustainable Mobility was published in 1992 by the European Commission. This document is a White Paper of the European Union (EU) and it has drawn attention to cleaner fuels that promote reduction in CO₂ and NO_x emissions, congestion reduction policies like discouragement of private cars, integration of transportation with environmental policies, encouragement of bicycle and electric cars, using multiclient taxi services, encouragement of public, walking and bicycle transport.

2.2.1.4. UN Rio Conference-Earth Summit, 1992

UNCED Earth Summit (United Nations Conference on Environment and Development) was held in Rio de Janeiro in 1992 in order to emphasize that the management of human settlements was a prerequisite for realizing the goals of sustainable development. The document outlined primary policies for attaining sustainable development that meets the needs of the poor and remarks the limits of development to fulfill universal needs. "Needs" was referred not only to economic interests but also comprehensively functional,

harmonious, global system that includes both people and ecosystems. Among its principles the followings exist:

- “In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process”
- “States shall enact effective environmental legislation”

One of the important outcomes of the UNCED was the declaration of Agenda 21, a policy framework for the 21st Century. It was stated that “Agenda 21 which is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment approved by national governments, claims that the effects of all human activity should be in a sustainable way”

(<http://www.un.org/esa/dsd/agenda21/>)

The following data was pointed out in the declaration:

- “Transport accounts for about 30 per cent of commercial energy consumption and for about 60 per cent of total global consumption of liquid petroleum. In developing countries, rapid motorization and insufficient investments in urban-transport planning, traffic management and infrastructure are creating increasing problems in terms of accidents and injury, health, noise, congestion and loss of productivity similar to those occurring in many developed countries.”

Promoting sustainable energy and transport systems in human settlements and promoting efficient and environmentally sound urban transport systems in all countries as a comprehensive approach to urban-transport planning and management were among its main programme areas. Strategies to achieve sustainable transport and environment are remarked in Agenda 21

as follows: Reduce transport demand, encourage non-motorized modes of transport and public transport, devote traffic management, and reduce the use of energy.

2.2.1.5. Habitat II Conference, 1996

United Nations Conference on Human Settlements (Habitat II) was held on June 1996 in Istanbul in order to take the opportunity to endorse the universal goals of ensuring adequate shelter for all and making human settlements safer, healthier and more livable, equitable, sustainable and productive (<http://www.unhabitat.org>). Rising traffic congestion, increasing pollution and lack of green spaces (which are directly related to sustainable urban transport) were among the serious problems that cities and inhabitants confronted day after day.

2.2.1.6. OECD- Vancouver Conference- Towards Sustainable Transportation, 1996

The OECD Vancouver Conference was organized in 1996 in response to the concerns of governments that transportation poses severe challenges for sustainable development. The objectives of conference were as follows: moving towards environmentally sustainable transportation, putting and accommodating goals for transportation, environment, energy and development and identifying the correct policies that will be adapted to attain environmentally sustainable transportation.

It was stated that 82 % of final energy consumption for transportation which is the largest share of transport was by road in OECD countries in 1990 and that the air transport is the second largest user of fuels (OECD Proceedings, 1996, p.14). Because of the unsustainability of petrol resources and the huge negative effects of transportation on environment, the term of sustainability becomes particularly important in the transport sector. Air pollution originated from transport has been handled from local, regional and global point of view in the conference. CO₂ is accepted as the greatest potential impact to

environment which is a natural outcome of combustion. "Between 1972-1988, carbon dioxide emissions from transportation increased by 30 percent world-wide to 773 million tons; CO₂ emissions from other human activities fell overall by about two percent to 1969 million tones" (Nijkamp, 1994, p.262, cited in OECD Proceedings, 1996, p.21). In addition to this in UK between 1970 – 1990 carbon dioxide emissions from transportation increased by 65 % while CO₂ emissions from other human activities fell by 23 % (Hart, 1994 p.711, cited in OECD Proceedings, 1996, p.21).

Another contributor gas is the formation of NO_x which exhausted during the process of combustion of aviation fuel and this cycle causes indirect greenhouse effect. According to Government Policy of the Netherlands on air Pollution and Aviation (1995, cited in OECD Proceedings, 1996, p.21) the indirect greenhouse effect caused by the formation of NO_x is almost equal to the effects from CO₂ emissions. The third contributor gas affecting climate change is chlorofluorocarbons (CFCs) that gets out from air condition systems of transportation vehicles.

According to OECD proceedings (1996) "sustainability becomes more global than local in the long term" (p.24). That is because the more human being uses the planet in an unsustainable way, the more environmental effects are irreversible.

Another unsustainable matter in transport is high usage ratio of land. "In Los Angeles and Indianapolis, more than 65 percent of the land is said to be paved for transport purposes; in Toronto it is more than 40 per cent" (OECD Proceedings, 1996, p.27). These ratios are too high to be effective in terms of land-use and environmental protection. By building more roads it is allowed to destroy environmental balance and habitat of other livings. In addition to this, in OECD proceedings it is claimed that by motorized transport urban sprawl is spreading and it is consuming agricultural land. This makes urban sprawl and reduction of rural and agricultural areas, which negatively affects natural life.

Financial costs, accidents, congestion and social disruption are the other costs of motorized transportation according to the discussions in the Vancouver Conference.

In summary, the conference can be considered as an essential meeting that, after the discussions of unsustainable situation, puts forward what a sustainable transportation system might be like and sets principles and strategies. The conference come to such solutions: Some improvements and changes are certainly required in transportation infrastructure including making more options for walking and cycling, vehicles, fuels, in the way of transferring goods and personal movement for moving towards sustainable transportation. Restrictions on ownership and use of the car can be useful in dealing with city center congestions. Political, economic and social restrictions should be lifted. More than this, certain principles, which are access, equity, individual and community responsibility, health and safety, education and public participation, are set out.

2.2.1.7. Kyoto Protocol, 1997

Kyoto Protocol was adopted by The United Nations Framework Convention on Climate Change (UNFCCC or FCCC) in 1997 and was effectuated on February 2005. The protocol is an international agreement which facilitates the development and deployment of techniques that can help increase resilience to the impacts of climate change (<http://unfccc.int>).

“The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas (GHG) emissions and these amount to an average of five per cent against 1990 levels over the five-year period 2008-2012” (<http://unfccc.int>). More than 170 countries signed the protocol and Turkey signed it in early 2009 although signing the Kyoto Protocol does not put any additional burden on Turkey until 2012.

Within the EU, there is a strong imperative to take action to achieve the 8 % GHG reduction targets set by the Kyoto Protocol, and it has been legally binding on EU Member States since April 2004. (Banister et al., 2007, p.2).

This ratio is 7 % for USA but the protocol was not ratified by the US.

Six main greenhouse gases are targeted to be reduced and these are; Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF₆).

Especially CO₂ and N₂O are important for this study for the reason that they are the outputs of combustion of vehicle fuels in road transportation.

2.2.1.8. The Common Transport Policy- Sustainable Mobility: Perspectives for the Future, 1998

This EU report entitled as the Common Transport Policy Sustainable Mobility: Perspectives for the Future (1998) designate the term sustainable transportation as sustainable mobility. The basics of the “Common Transport Policy” in EU date back to the Treaty of Rome (1957) when the common policies of the Union were determined. After that, the Treaty of Maastricht (1992) planned to construct Trans European Networks (TENs) in order to improve economic competitiveness in European Union boundaries. From the beginning of establishment, European Union (EU) gave opportunity of freedom to travel, work and live anywhere in the EU.

In the report of Sustainable Mobility (1998), it is determined that the current levels of use of air and road transport modes are unsustainable in terms of environmental impact and climate change. Hereafter, the development of sustainable forms of transport became one of the key priorities of the Commission. The Commission put essential objectives to limit the effects of transportation on climate change after Kyoto Protocol and added that the common transport policy and the structural policies were hand in hand and

counterpart items to help sustainable development and transportation (Common Transport Policy, 1998).

In order to make better standards of efficiency and sustainability of transport systems in EU, it was stated in this document that the quality of local public transport has to be promoted and safety and intermodality have to be improved (Common Transport Policy, 1998).

Finally, the Community's framework for sustainable mobility should be contingent to a standard worldwide review and some measures have to be taken to decrease the dependence of economic growth on increases in transport activity and any such increases on energy consumption, as well as the development of less environmentally damaging energy alternatives for transport (Common Transport Policy, 1998).

2.2.1.9. White Paper European Transport Policy for 2010: Time To Decide, 2001

The EU White Paper "European transport policy for 2010 : time to decide" was published in 2001 and it works out political guidelines and a ten-year strategy that can bring sustainable European transport which would help to improve European Union in terms of economic competitiveness.

According to the White Paper, "a modern transport system must be sustainable from an economic and social as well as an environmental viewpoint" (p.10). The strategy focused predominantly on balancing the different modes of transport, minimizing traffic congestion, developing intermodality, maintaining the right to mobility, harmonizing legislation within specific sectors, and enhancing transport safety.

It is stated that "if nothing is done to reverse the traffic growth trend, CO₂ emissions from transport can be expected to increase by around 50 % in 2010 to reach 1 113 billion tones in 2010, compared with the 739 million tones recorded in 1990" (p.14). "Road transport is the main culprit since it alone accounts for 84 % of the CO₂ emissions attributable to transport"

(p.14). Urban transport on its own accounts for 40 % of carbon dioxide emission from road vehicles (p.80).

The White Paper aims to assign policy guidelines for all areas of sustainability including urban transport and environmental concerns. Some examples are; “reducing dependence on oil from the current level of 98 %, by using alternative fuels and improving energy efficiency” and “decreasing the number of deaths on roads at the end of 10 years time and in order to minimize expected increase in traffic congestion” (p.14).

The document stated that modal transfers for passenger transport were essential for single trips. Integrated ticketing, providing journeys as continuous as possible, hence intermodality with railway, bus system and car parks were stated as ways of improvements. The White Paper (2001) specified that %5 of total journeys in Europe was made by bicycle while bicycle transportation was still neglected to be considered as a mode of transport. So, the Commission suggests integrating bicycles with public transport in shorter distances to make its usage higher.

There is a relationship between congestion and pollution if the time passed in traffic is considered. In White Paper it is implied that with city center congestions emissions may be three or four times higher while traffic speed is three or four times slower. Including all urban transport problems such as congestion in large city centers, air pollution, climate change and inadequate infrastructure; paper’s suggestions are clean vehicles and good quality public transport.

2.2.1.10. World Bank: “Cities on the Move”, 2002

The Cities on the Move, a World Bank Urban Transport Strategy Review was published in 2002.

According to World Bank in all areas of sustainability including transportation, sustainability has three components and these are economic, environmental and social sustainability. Economic sustainability refers to finding new ways

of encouraging respond for needs. Environmental sustainability refers to creating livable environment and minimizing the negative effects of development on environment. Social sustainability involves minimizing the poverty in the light of the term equity.

World Bank describes the fundamental paradox of urban transport strategy in such ways;

“Urban transport can contribute to poverty reduction both indirectly, through its impact on the city economy and hence on economic growth, and directly, through its impact on the daily needs of poor people... Urban growth increases transport costs... As cities grow and become richer, vehicle ownership and use grow more rapidly than the available road space, resulting in increased congestion and traffic-generated air pollution... Urban growth often has pervers distributional effects. As cities expand, the price of more accessible land increases. Poor people are forced to live on less-expensive land, either in inner-city slums or on city peripheries. As average incomes grow and car ownership increases, the patronage, financial viability, and eventually quality and quantity of public transport diminishes. Motorization, which is permitted by the growth process, may thus also make some poor people even poorer.” (World Bank, 2002, p.xii).

The report has proposed a strategy package including 4 main topics to challenge those problems. These are; (a) structural change, (b) improved operational efficiency of the transport modes, (c) better focusing of interventions to assist the poor, and (d) policy and institutional reform (p.xii, executive part). World Bank report also has strategies and/or proposal packages for countries in all unsustainable areas of urban transportation including the relationship between urban transport and the urban environment, urban transport and security-safety, urban transport and the importance of non-motorized transport.

World Bank strategy report also implies that the bank will assist countries in:

- making urban transport more sustainable and environmentally friendly in developing of non-motorized modes of transport in urban transportation,
- increasing the capacity of traffic management, demand restraint, public transport,
- extending of bus rapid transit systems,
- increasing efficiency of fuel utilization in transport (Cities on the Move, p.178- 179).

2.2.1.11. EU Green Paper: Towards A New Culture For Urban Mobility, 2007

European Commission published on September 2007 a Green Paper called "Towards a new culture for urban mobility". The Green Paper identifies a number of core elements of sustainable urban mobility, namely the need to make towns and cities and their transport systems more fluid, greener, 'smarter', more accessible, and safer (urban mobility leaflet, 2007).

EU Green paper addresses the main challenges related to urban mobility by 5 topics towards free-flowing towns and cities, greener towns and cities, smarter urban transport, accessible urban transport, safe and secure urban transport.

Proposals in the Green Paper (2007) include:

- "Make the modes of transport which are capable of replacing the car safe and appealing;
- Encourage co-modality;
- Encourage walking and cycling and develop the infrastructure for these methods of travel;

- Optimise car use by carpooling and optimise "virtual mobility" (tele-working, tele-shopping, etc.);
- Implement a parking policy designed to reduce traffic;
- Encourage follow-on connections with public transport
- Introduce urban charges, as seen in London or in Stockholm
- Encourage the introduction of Intelligent Transport Systems (ITS) to enable better trip planning;
- Encourage the use of cleaner and smaller vehicles,
- Improve the integration of freight distribution in urban areas within local policy-making and institutional settings
- Support research and technological development of vehicles using alternative fuels (bio fuels, hydrogen, fuel cells)
- Encourage "eco driving" to enable energy consumption to be reduced, as part of training given by driving schools; encourage the use of traffic management systems (which will be improved, particularly as a result of the Galileo programme); support the development of more "intelligent" cars;
- Apply traffic restrictions in certain cases
- Improving the quality of infrastructures, especially for pedestrians and cyclists;
- Encouraging people to be more aware of their behavior with regard to road safety"

(http://europa.eu/legislation_summaries/transport/mobility_and_passenger_rights/l24484_en.htm)

2.2.1.12. EU White Paper, 2011

This most recent White Paper of the EU is a policy paper prepared towards a competitive and resource efficient system. It is expressed that no new major transport infrastructure is planned and if necessary any transport investment has to maximize positive impacts on economy and minimize negative impact on the environment, which aims sustainability in transportation. It is also stated that sustainable clean energy and environmental results are important because the choices preferred today will determine transport in 2050. White Paper also encourages traffic demand management, transport integrated land-use planning, bicycle and walking transportation, efficient public transport services, charging/ refueling of clean vehicles, pricing schemes for urban areas.

The 2011 White Paper have also set certain targets. These are;

- World greenhouse gas emissions will be reduced by 80-95 % below 1990 levels by 2050 and 60% of that is required from transport sector (p.3).
- The use of 'conventionally- fuelled' cars will be halved in urban transport by 2030; and will be phased out in cities by 2050 (p.9).

2.2.3 Evolution of urban transport policy: from road programmes to demand management; increasing focus on public transport, cycling and walking

It has been stated at the beginning of this chapter that while the concept of sustainability had a fundamental effect on transport policy, transport planning and policy has already been undergoing radical changes in its paradigm and approaches since the 1970s. These changes are mostly related with increasing awareness on the problems caused by auto-dependent transport and city systems. They are also mainly related with failures of extensive road

investments in solving congestion problems, which is a core challenge in transport planning.

In order to understand this change in transport planning approaches, the overall historical change and breaking points in urban transport development are given in the table below. The table summarizes the development process from traditional pre-modern walking city to postmodern sustainable city, including the effects of different transport technologies on economy, social organization, urban form, and the environment.

Table 1 The characteristics of historical city developments

	Traditional Pre-Modern walking city	Industrial Transit City	Modern Automobile city	Postmodern Sustainable City
Economy (and technology)	Small household industries (local and small economy)	Larger industries, concentrated in parts of cities (national and regional economy)	Large scale industries Scattered through city (national and regional economy)	Information and services oriented (global economy): heavy industries to rural areas and small towns
Social organization	Person-to-person community based	Bigger cities losing person-to-person contact but still community oriented in rail-based suburbs	Individualistic and isolated	Local community-based, but globally linked
Transport	Walking (and cycling later)	Streetcars and trains (also walking and cycling)	Cars (almost exclusively)	Walking and cycling (local), transit (across city), cars (supplement) Air (for global)
Urban Form	Walking city: small, dense, mixed,	Transit city: medium-density suburbs,	Automobile city: high-rise CBD, low-density	Sustainable city: local urban villages (high density) linked

	organic	dense mixed centre, corridors with green wedges	suburban sprawl zoned to further separate functions	across city by transit, medium and low density areas around villages, no sprawl
Environment -resources -wastes -nature orientation	Low Low Close to rural areas	Medium Medium Some connection through green wedges	High High Little nature orientation	Low-medium Low-medium Close to nature

Source: Newman and Kenworthy, 2000

The historical development of cities from pre-modern walking era to industrial transit period to the automobile era is well known. For the purpose of this study, the last two columns of this table, which show the transition from the automobile city to sustainable city are particularly important. This transition is described in the following sections, which summarize the paradigm shift in urban transport planning.

2.2.3.1 Conventional urban transport planning approach: “Predict and Provide”

Conventional transport planning aimed to improve mobility, especially for vehicles, not for pedestrians, and ignored wider impacts of transportation. As Goodwin (2001) stated, since the end of the 1950s the transport planning approach was ‘predict and provide’ and it can be explained as firstly forecasting the future traffic demand and then constructing roads that will be enough to meet the future demand. Banister (2001) claimed that “the 1990s have been remembered for the huge growth in the numbers of cars and drivers...traffic levels in many countries have doubled (1975-1995), but the expansion of the infrastructure has been more modest, typically a 10-15 % increase in the road network.” This resulted in the expansion of road capacity and congestion in cities with the increasing ownership and usage of cars in course of time. Increasing CO₂ and NO_x levels that affect global atmospheric

pollution and local air quality, encouraging city expansions, which disrupts the spreading the public transport systems because of longer distances, diminishing resources, crash fatalities and injuries and noise problems were the other consequences of this conventional transportation policy and planning.

It is seen that the car is becoming more dominant in cities' daily life day by day and creating problems faster than expected. The problems of car dependence are associated with a range of environmental, economic and social problems which also correspond to the three branches of sustainability.

Table 2 Problems of car dependency

Environmental	Economic	Social
Oil vulnerability	External costs from accidents and pollution	Loss of street life
Photochemical smog	Congestion costs, despite endless road building	Loss of community
Toxic emissions such as lead and benzene	High infrastructure costs in new sprawling suburbs	Loss of public safety
High greenhouse gas distribution	Loss of productive rural land	Isolation in remote suburbs
Urban sprawl	Loss of urban land to bitumen	Access problems for car-less and those with disabilities
Greater storm-water problems from extra hard surfaces		
Traffic problems such as noise and severance		

Source: Newman and Kenworthy, 2000

2.2.3.2 New Realism and “Predict and Prevent”: the increasing importance of Transport Demand Management (TDM)

After the trend of road programs in the world, it was understood that it is impossible to provide larger and longer roads to meet the ever-increasing demand. As Goodwin (2001) claimed, “the supply of road space will not (because it cannot) be increased to match the demand; therefore, demand will have to be reduced to match supply” in order to manage all problems of transportation and make transport sustainable.

A radical change has been experienced in transport planning in the last forty years (Banister 2001). The conventional understanding of transportation policy has changed from predict and provide to travel demand management (TDM). This change has been referred to as the ‘new realism’. Because road supply cannot meet the rapidly increasing demand for more road space, the approach has turned to travel demand management which is a way of application of strategies and policies to reduce travel demand or to redistribute demand in space, in time and across modes of transport.

Table 3 Differences between conventional and contemporary planning approaches on transport

Conventional Transport Planning	Contemporary Transport Planning
Supply oriented	Demand oriented
Mobility	Accessibility
Motorization	Non-motorization
Priority for automobiles	Priority for pedestrians
Congestion reduction	Traffic reduction
Private car use	Public transport
Increasing capacity	Efficient use of existing capacity
Short-term solutions	Long-term solutions
Weak coordination with planning	Strong coordination with planning
Limited analysis on environmental, economic and equity impacts	Comprehensive analysis on environmental, economic and equity impacts

Source: Adopted from Litman, 2011a

As a result, conventional transportation policy has created problems that highlighted the unsustainability of car based transportation approach. Car oriented transport policy is now rejected and policy has changed from “predict and provide” to travel demand management in order to sustain transportation system. All these discussions on transportation have incorporated with the term of sustainability and sustainable urban transportation principles have begun to be discussed. These principles are presented below.

2.2.4 Definitions, goals and instruments of sustainable urban transport

2.2.4.1 Definitions of Sustainability, Sustainable Development and Sustainable Urban Transport

As explained earlier, the Report of the World Commission on Environment and Development: Our Common Future (1987), also known as the Brundtland Report, was the first to clarify the term “sustainability and sustainable development”. The commission defines sustainable development as the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Another definition claims that “sustainability is a generic word to express the need for a long-term perspective where there is reduced demand on environmental resources and on environmental sinks; it also expresses the need to make the necessary changes in ways that are economically and socially beneficial (Newman and Kenworthy, 2000, p.1)

Transport is one of the major sectors that affect sustainable development and sustainability of the city. One of the definitions of sustainable transportation is made by Pearce et al. (1989) and Daly (1992) that represents transport and mobility with non declining capital, where capital would include human capital, monetary capital, and natural capital (Cited in Black, 2010).

Gordon (1995) prefers describing visions about sustainable transportation instead of making a definition. According to her there are three visions; changing people and the way they live, changing technology and changing prices in order to make transportation sustainable (Cited in Black, 2010). From this statement the required actions are more important than definitions. In the same study, Schipper (1996) claims that “sustainable transportation is transportation where the beneficiaries pay their full social costs, including those that would be paid by the future generations” (p.4).

One of definitions of sustainable transportation was made in Vancouver OECD Conference in 1996. In the Proceedings Report of the Vancouver OECD Conference, sustainable transport was described as follows: “transportation that does not endanger public health or ecosystems and meets mobility needs consisted with (a) use of renewable resources at below their rates of regeneration and (b) use of non-renewable resources at below the rates of development of renewable substitutes” (p.12). Actually these are parallel with what Sustainable Mobility Report defends. The Sustainable Mobility Report of the European Union (2001) defines sustainable mobility, which refers to sustainable transportation in general, as “the ability to meet the needs of society to move freely, gain access, communicate, trade and establish relationships without sacrificing other essential human or ecological values today or in the future.”

The commonly used encyclopedia of the world wide web, Wikipedia, explains sustainable transportation as follows: “With the increasing attention to sustainable transport around the world it refers to any means of transport with low impact on the environment, and includes walking and cycling, transit oriented development, green vehicles, car sharing, and building or protecting urban transport systems that are fuel-efficient, space-saving and promote healthy lifestyles”. In a recent study, Black (2010) states that sustainable transportation is a term when transportation and mobility are done with renewable energy, the contrary effects to the environment have been decreased and traffic accidents, congestions have been avoided. In addition to these, Newman and Kenworthy (2000) also agreed on the same definitions and they noted that as long as cities are automobile dependent they cannot be regarded as sustainable.

2.2.4.2 Sustainable Urban Transport Planning Goals

Banister et al. (2007) claims that “The broad aim of a sustainable transport strategy in mobility terms must be to allow the output from transport to be maintained or increased, but at the same time to reduce the energy inputs,

particularly in terms of the use of nonrenewable resources. This would mean a reduction in emissions (including CO₂), improvements in air quality, and the use of alternative fuels” (p.1)

According to Litman, (2001b, p.1) “Sustainable transport planning recognizes that transport decisions affect people in many ways, so a variety of objectives and impacts should be considered in the planning process”.

These are as follows;

“Economic Goals

- Efficient mobility: Fast and affordable transport of people and goods
- Local economic development: Progress toward local economic goals, such as increased productivity, employment, business activity, income, property values and tax revenues
- Operational efficiency: Maximize efficiency of providing transport facilities and services

Social Goals

- Human safety and health: Increased travel safety, public fitness and health
- Affordability: Ability of households to afford basic transport
- Social equity: Supports equity objectives including fair distribution of impacts (benefits and costs), progressivity with respect to income, and basic mobility
- Community cohesion: Increased quantity and quality of interactions among community members
- Cultural preservation: Preservation of artifacts and activities valued by a community

Environmental Goals

- Pollution reductions: Reduced air, noise and water pollution

- Resource conservation: Reduced and more efficient use of scarce resources such as petroleum and land
- Open-space preservation: Preservation of farmlands, parks, and natural habitats”

(Litman, 2011b,p.2)

2.2.4.3 Sustainable Urban Transport Instruments

Around the same time with increasing recognition of travel demand management (TDM) approaches, the term of sustainability received popularity and called forth awareness in planning. Putting conventional transport planning out of action because of its damaging consequences meant trying to make transport sustainable with the assistance of TDM. Thereafter, the subject matter in transport planning has changed into turning unsustainable cities into sustainable cities by altering travel demand. “In practice transport plans and strategies which emphasize managing the demand for travel tend also to promote anti-congestion measures which reduce the pressure on the road system, e.g. encouraging greater public transport usage and car pooling, imposing traffic restraint via stringent parking control measures at destinations, and promoting the use of variable working hours and telecommunication working processes by large employers so as to shift travel from congested peak periods” (O’Flaherty, 1997: 147).

Newman and Kenworthy (2000) suggested a number of actions to turn a car-dependent city into a sustainable city: renewing the inner part of the city, encouraging public transport oriented development around existing rail systems, restraining additional urban sprawl, improving urban public transportation system network and creating new urban neighborhood in the suburbs.

Ensuring good accessibility by public transport, in combination with the provision of walking and cycling networks, is crucial to reducing reliance on the car and promoting more sustainable alternative travel patterns (Stead and Banister, 2001). Traffic calming, pedestrianization with reduced parking

which are the means of sustainable transportation are suggested by Newman and Kenworthy (2000) in order to change the current city to a sustainable city. Another instrument is park-and-ride and is defined as the act of parking at a car park and transferring to public transport to travel (O'Flaherty, 1997). According to Newman and Kenworthy bike-and-ride activities are more adaptable with rail stations than park-and-ride areas. Seven key issues are described to indicate unsustainable points in transportation to make it sustainable. Increasing traffic congestion in city centers; increasing air pollution; traffic noise, number of accidents and injuries; consumption of agricultural lands or open spaces in urban periphery for construction of new roads; use of space which refers to car dependence domination in traffic; and at last increase in the quantity of harmful gases in the atmosphere that causes global warming and climate change (EFTE 1994, Banister, 1997, cited in Banister, 2000: 115).

Banister (2000, p.117) claims that "the rapid growth in demand for travel, the increase in car ownership and the high external costs of transport all mean that trend-based visions of the future cannot find the solution to a sustainable urban transport system." Hereupon, he develops two key actions of vision for the future which are the eco-car and reducing the need to travel. In a previous research, Banister (1997) defines that with the help of producers the eco-car which is powered by hydrogen fuel cells will be produced in standard by the year 2020 and in long term period the eco-car will have a great contribution on reducing air pollution, noise, global warming, congestion, the use of space by traffic. Black (2010) also agrees upon the eco-car strategy, stating that it will discard our worries about the problems of declining resources, global pollution and local air quality caused by transportation. The second type of action that Banister (2000) describes is about using urban planning and new technologies to reduce travel demand. He argues that when planning for new developments, settlements that are with the density of at least 40 persons per hectare, with the population higher than 50 000 and with the distance less than 5 km to existing towns/cities, can provide walking,

cycling and public transport as viable options to its citizens. Following these, the author claims firstly a strong planning system that seeks minimum travel between home-job, home-services and secondly he states that with the help of technology, teleactivities including telecommuting, teleshopping, and teleconferencing will have an impact on reducing the need to travel.

In addition to the above policies for clean-energy (eco-car), effective urban planning, and better use of Information and Communication Technologies (ICT), a sustainable urban transport policy must also include actions to improve and expand travel options and to restraint car usage. Hence, cities must improve and build more public transport infrastructure; they must enhance public transport service quality; and they must develop better infrastructure for cycling and walking. Improving these alternative modes is essential but not enough alone to change the travel demand from the cars to public transport and non-motorized transport. Therefore, car restraint policies should also be implemented and these may include road capacity reduction (including pedestrianization) and car park capacity reduction in city centers, as well as pricing policies, such as car park pricing, congestion charging, etc.

Congestion charging is a new application provided by local authorities in order to decrease car density in city centers by paying for car entrance. Furthermore, car parking pricing policies should contribute to decrease of private cars in city centers.

In the planning process of implementation of urban transport investments; public transportation including bus, paratransit, rail, water transport and non-motorized modes should be integrated with each other, with private car infrastructure and with park and ride systems. Thereby, intermodality has been encouraged and in addition to transportation planning, travel cards and common ticket system should be integrated to public transportation systems.

2.2.5. The need for a policy and legislation framework for the successful implementation of sustainable urban transportation

In summary, the conventional understanding of transportation policy has changed from road programmes to travel demand management in the last forty years. With the increasing population of urban centers, the environmental, social and economic consequences of transportation have taken place on the agenda of the world. The new trends in urban transportation to make it more sustainable are;

- encouragement of the travel demand management,
- encouragement of intermodality,
- improvements in urban public transportation systems including the integration of travel cards, park and ride systems, etc.
- congestion charging systems in city centers,
- Implementation of a parking policy in order to encourage car drivers to park their cars at urban peripheries and ride public transport, rather than driving into the city centers,
- improvements in cycling and walking infrastructure including cycle lanes, parks, integration with public transport systems and pedestrianized areas and squares,
- encouragement of use of alternative fuels (hydrogen, electricity and biofuels) and clean vehicles (eco-cars).

It can be seen that all these actions and instruments for sustainable urban transport are typically projects that should be carried out by local governments. Projects, instruments and policies detailed above are realized by local governments for the reason that central government authorizes local governments in urban transportation. When the number of local governments is considered, a common policy and local framework is considered necessary

for realizing urban transportation projects in accordance with sustainability. Otherwise, each local authority may realize urban transportation projects based on their level of awareness, capacity and know-how regarding urban transport. Hence, while numerous national and supranational policy documents have been reviewed in the first part of this chapter, it is actually not the national governments but local governments that should adopt these policies for sustainable urban transport. Therefore all these policies at the national government level should be transferred to local governments so that cities are transformed into more sustainable places. The need for a policy and legislation framework becomes key point in order to achieve the successful implementation of sustainable urban transport.

Some countries are accepted as good-practice case studies, which have successful guidance of central to local governments and enacting acts for sustainable urban transportation. Primarily, United States of America (USA) and United Kingdom (UK), accepted as one of the good-practice cases in the world in terms of their extensive legislations, policy documents and guidance papers for promoting sustainable urban transportation.

The next chapter therefore analyses two countries, USA and UK, in order to assess the content of their policy documents and legislations that may guide or even force local authorities to adopt policies for sustainable urban transport.

CHAPTER 3

USA & UK AS EXAMPLES FOR POLICY AND LEGISLATION FOR SUSTAINABLE URBAN TRANSPORT

3.1. United States of America (USA)

The first law related to urban transportation planning and assistance was enacted in 1964 as Urban Mass Transportation Act. With this act, federal government intervened urban mass transit. Since then, US federal government enacted laws on urban transportation planning by determining an allocation from budget to urban transportation programs and projects including sustainable matters on environment, environmental impact, air quality, energy conservation, clean energy, bicycle/pedestrian plans, congestion problem, accessibility, mobility, intermodality and the consistency of land use and urban transportation plans.

3.1.1 Urban Mass Transportation Act of 1964

“The first real effort to provide federal assistance for urban mass transportation development was the passage of the Urban Mass Transportation Act of 1964” (Weiner, 1997). “The objective of the act, still in the spirit of President Kennedy’s Transportation Message, was “...to encourage the planning and establishment of area wide urban mass transportation systems needed for economical and desirable urban development” (U.S. Dept. of Transportation, 1979b, cited by Weiner, 2008: 40). According to Black (1995), this law firmly established a federal role in urban transit and most of the next federal laws have technically been amendments of this act. It allocated funds to any transit project “essential to the comprehensively planned development of the urban area.”

3.1.2 Department of Transportation Act of 1966

Department of Transportation was established in 1966 to manage the coordination between transportation programs and transportation services with supporting private enterprise. The Department of Transportation Act declared that the nation required fast, safe, efficient and convenient transportation at the lowest cost consistent with other national objectives including the conservation of natural resources (Weiner, 2008: 46). Of all the regulations related to historic preservation, Section 4(f) of the 1966 Department of Transportation Act has the most potential for protecting and re-empowering endangered historic structures (www.archconservation.com). According to law, any transportation program or projects can be accepted if it is requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land of an historic site of national, State, or local significance unless there is no prudent and feasible alternative to using that land; and the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use. "This was the earliest statutory language directed at minimizing the negative effects of transportation construction projects on the natural environment" (Weiner, 2008:46).

3.1.3 National Environmental Policy Act of 1969

National Environmental Policy Act of 1966 is related with federal agencies for using a systematic interdisciplinary approach to planning and decision-making. Federal agencies were also required an environmental impact statement for all legislation and major federal actions that would affect environment significantly. The responsibility belonged to the Council on Environmental Quality.

3.1.4 Clean Air Act of 1970

The Clean Air Act is a federal law that regulates air emissions from stationary (e.g., factories, power generation facilities, etc.) and mobile (e.g.,

automobiles, trucks, backhoes) sources. In the US, motor vehicle emissions were first regulated by federal standards in the late 1960s (McCarthy, 2005). Since then, allowable emission rates have been periodically lowered as significant numbers of metropolitan areas continued to fail National Ambient Air Quality Standards (NAAQS) established by the Clean Air Act of 1970. Besides this, Environmental Protection Agency (EPA) was created by this act and EPA proposed regulations on state implementation plans to fulfill air quality standards. It was specified in the original Act of 1970 that on-road vehicles include automobiles, light trucks, motorcycles, heavy-duty trucks and other vehicles are in the major category of air pollutants emissions (IEC, 2011).

3.1.5 Clean Air Act Amendments of 1990

The Clean Air Act was enacted in 1963 with major revisions in 1970, 1977, and 1990 primarily to set new goals (dates) for achieving attainment of NAAQS. According to Clean Air Act Amendment,

“...For areas with 1980 populations of 250,000 or more, a clean-fuel program had to be established, which required fleets of 10 vehicles or more to use nonpolluting fuels... After 6 years, and for each third year after that, areas had to demonstrate that vehicle emissions, congestion levels, vehicle miles travelled (VMT), and other relevant parameters were consistent with those used in the State Implementation Plan (SIP). If not, an SIP revision was required within 18 months that included transportation control measures (TCMs) to reduce emission levels consistent with the levels forecasted in the SIP (US Environmental Protection Agency, 1990, cited by Weiner, 2008: 168).

Transportation related air quality standards are controlled by the state and regional strategies. Projects had to be evaluated in a comprehensive way, not only a project base. In order for a transportation project to be adopted or approved, three conditions or requirements had to be met. These are; firstly a project must come from a conforming plan and program; secondly the design concept and scope of such project must not be changed significantly

since the conformity finding regarding the plan and program from which the project derived; and thirdly the design concept and scope of such project at the time of the conformity determination for the program must be adequate to determine emissions (Clean Air Act Amendments, 1990: 13)

States in USA should also submit a revision to the applicable implementation plan to provide for an enhanced program to reduce hydrocarbon emissions and NO_x emissions from in-use motor vehicles registered in each urbanized area with a 1980 population of 200,000 or more. Environmental Protection Agency (EPA), in consultation with Department of Transportation (DOT), state and local officials, was to point transportation planning guidance within 9 months of enactment. In addition to this, being guidance for the estimation of vehicle miles of travel (VMT) within 6 months is under the responsibility of EPA, negotiating with DOT (Weiner, 2008: 169,170)

3.1.6 Intermodal Surface Transportation Efficiency Act- ISTEA, 1991

Among the background of this act; traffic congestion, quality of environment, need for multimodal transit hold a significant place and many related legislation amendments were done like Clean Air Act and UMTA had prepared to shape Intermodal Surface Transportation Efficiency Act (ISTEA) (ISTEA, 1991).

The purpose of the act was stated in its statement of policy:

“It is the policy of the United States to develop a National Intermodal Transportation System that is economically efficient and environmentally sound, provides the foundation for the Nation to compete in the global economy, and will move people and goods in an energy efficient manner” (Weiner,2008).

It was the first time that the term ‘intermodal’ was used instead of ‘highway’ in this legislation. By changing the term law-makers aimed to attracting attention to other modes of transport and new concerns such as economic progress, a cleaner environment, energy conservation, and social equity (Goetz, 2007).

This legislation emphasized the transportation systems that promote mobility and accessibility to make a great decrease on transport related fuel usage and vehicle emission in conjunction with the Clean Air Act Amendments.

ISTEA authorizes six major programs to enhance system management and maintenance, including: pavement management system, bridge management system, public transit facilities and equipment management system, intermodal management system, traffic congestion management system, and highway safety management system (Miller, Jia, 1998). Traffic congestion management system, intermodal management system and public transit facilities are in content of this thesis because of making transportation system more sustainable.

With this act Surface Transportation Program (STP) was created, and that provides more flexibility to states and local governments in using highway funds for non-highway purposes such as public transit, carpool, parking, bicycle and pedestrian facilities, traffic management and control systems, bridge projects and so forth. In addition to this, with this act each state was required to spend 10 % of their funds for safety construction activities and 10% for transportation enhancements, including bicycle and pedestrian facilities; acquisition of scenic easements, landscaping and beautification; preservation or rehabilitation of historic sites; preservation of abandoned rail corridors including conversion to bicycle or pedestrian trails; control of outdoor advertising; archaeological research; and mitigation of water pollution from highway runoff (Weiner, 2008).

ISTEA also created a new Congestion Mitigation and Air Quality Improvement Program for transportation projects in ozone and carbon monoxide nonattainment areas.

ISTEA empowers state, regional, and local transportation planning and policy making in response to the transportation needs of communities (Miller, Jia, 1998). The act also increased the role of metropolitan planning process and expanded the role of metropolitan planning organizations in project selection

and transportation decision-making (Weiner, 2008). Each metropolitan area was required to prepare a long-range plan considered as an integrated transportation system including preservation of the existing transportation infrastructure, solving congestion problems and assessing capital investment. For nonattainment areas (urban areas with high air pollution levels and not meeting the standards), the progress of transportation control measures for the state implementation plan had to be in conformity with the progress of long-range plan (which is a requirement of ISTEA).

One of the items of act is related to Transportation Management Areas (TMAs). According to this, congestion management system had to exist in transportation planning process in order to use the existing transportation infrastructure efficiently by providing decrease in travel demand and use of operational strategies.

By this act, for the first time, all states must prepare statewide transportation plans. So, another essential viewpoint of this act is guiding and determining the general principals on metropolitan and state-wide transportation planning factors. When the topic of this study is taken into consideration, related factors are listed below under two categories, first metropolitan transportation planning factors, and secondly state –wide transportation planning factors.

a. Metropolitan transportation planning factors relevant to the topic of this thesis are:

- Preservation of existing transportation facilities and, where practical, ways to meet transportation needs by using existing transportation facilities more efficiently.
- The consistency of transportation planning with applicable federal, state and local energy conservation programs, goals and objectives.

- The need to relieve congestion and prevent congestion from occurring where it has not yet occurred
- The likely effect of transportation policy decisions on land use and development and the consistency of transportation plans and programs with the provisions of all applicable short-and long-term land use and development plans

(US Department of Transportation, 1992, cited by Weiner, 2008)

b. State-wide transportation planning factors were identified in four major categories and twenty-three items, some of which are important for the main discussion of this thesis, and therefore listed below (Federal Highway Administration/ Federal Transit Administration 1995, 1996; cited by Goetz, 2007: 129,130):

I. System Performance and Preservation

1. Transportation needs (strategies and other results) identified through six management systems (pavement, bridges, safety, congestion, public transportation and intermodal)

3. Methods to reduce traffic congestion and to prevent traffic congestion from developing in areas where it does not yet occur, including methods which reduce motor vehicle travel, particularly single- occupant motor vehicle travel

II. Coordination and Collaboration among Stakeholders

10. The use of innovative mechanisms for financing projects, including value capture pricing, tolls and congestion pricing

III. Mobility and Access for People and Goods

IV. Environment and Quality of Life

17. Federal, state or local energy use goals, objectives, programs or requirements,

18. Strategies for incorporating bicycle transportation facilities and pedestrian walkways in appropriate projects throughout the state,
19. Recreational travel and tourism,
20. State plans developed pursuant to the Federal Water Pollution Control Act and the Coastal Zone Management Act,
21. The overall, social, economic, energy and environmental effects of transportation decisions (including housing and community development effects on the human, natural and man-made environment),
22. The effect of transportation decisions on land use and land development, including the need for consistency between transportation decision-making and the provisions of all applicable short-range and long-range and development plans (analyses should include projections of economic, demographic, environmental protection, growth management, and land use activities consistent with development goals and transportation demand projections),
23. Strategies for identifying and implementing transportation enhancements where appropriate throughout the state.

This systematic and clearly defined guidance act also assists states in order to achieve goals. It can be said that this approach is opposite with the previous project-by-project approach (Lindquist, 1998; cited by Goetz, 2007)

This act appears to be important because from this point onwards, the Government encourages local authorities to make traffic demand management, decrease the number of travel by motor vehicles, rehabilitate pedestrian and bicycle space. All these policies are related to, and encourage, sustainable urban transportation.

The law changed the name of Urban Mass Transportation Administration (UMTA) to the Federal Transit Administration (FTA) and changed the name of the Urban Mass Transportation Act to the Federal Transit Act.

3.1.7 Energy Policy Act of 1992

Energy Policy Act included topics of energy production, conservation, waste disposal, alternative fuels, taxes and tax incentives. There were certain targets regarding the increase in numbers of vehicles using alternative fuels and compressed natural gas, ethanol, methanol, propane, electricity and hydrogen were considered as alternative fuels.

3.1.8 National Bicycling and Walking Study, 1994

In 1990, bicycling and walking were described as “the forgotten modes” of transportation (Weiner, 2008: 195). The fall on the commuting trip made by bicycle and walking from 10.6 % in 1960 to 3.9% in 1990 had forced Americans to make improvement on these modes (US Department of Transportation, 1994). Bicycle and walking planning requirements were prepared by this study. In addition to this; National Bicycling and Walking Study had two goals: (US Department of Transportation, 1994; cited by Weiner, 2008).

1. Double the percentage of total trips made by bicycle and walking in the USA from 7.9 to 15.8% of all travel trips
2. Simultaneously reduce by 10% the number of bicyclists and pedestrians killed or injured in traffic crashes.

This study had a guidance role to the states all around the country. After this study, 20 of the 50 state DOTs had taken decision on having state-wide bicycle and pedestrian plans by 2004 (Weiner, 2008).

3.1.9 Transportation Equity Act for the 21st Century- TEA-21, 1998

The Transportation Equity Act for the 21st Century was enacted in 1998. TEA-21 maintains the same general structure as ISTEA and provides a flexible funding source to state and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act.

Scope of the metropolitan and state-wide planning process is to:

1. Support the economic vitality of the metropolitan planning area;, especially by enabling global competitiveness, productivity and efficiency
2. Increase the safety and security for the transportation system for motorized and non-motorized users
3. Increase the accessibility and mobility options available to people and for freight
4. Protect and enhance the environment promote energy conservation and improve the quality of life,
5. Enhance the integration of connectivity of the transportation system, across and between modes, for people and freight,
6. Promote efficient system management and operation,
7. Emphasize the efficient preservation of existing transportation system. (TEA-21, 1998: 112 STAT. 174)

Generally it can be said that TEA-21 is the public law that designates the allocation of funding to surface transportation investments for highways, other surface transportation programs including highway safety and transit.

TEA-21 is an expanded and additional version of the ISTEA and guaranteed funding, expansion of the environmental programs created by ISTEA. It also expanded the provisions for making bicycle and pedestrian ways safer and attractive to increase the percentage of the two modes in all commuter trips.

Transportation and Community and System Preservation Pilot Program was composed by TEA-21 in order to use existing infrastructure rather than new

investments with the aims of minimum environmental impacts, decrease the need of the costly public infrastructure investments (Weiner,2008).

Besides, the Clean Fuel Grant Program was created by Tea-21 to allocate money to purchase clean energy vehicles and low emissions vehicles.

Environmental justice was one of concerns of the act. States, as well as Metropolitan Planning Organizations (MPOs), were required to address environmental justice concerns in their long-range transportation plans and short-range transportation programs (Goetz, 2007).

3.1.10 Safe, Accountable, Flexible, Efficient Transportation Equity Act- SAFETEA-LU, 2005

Because of the expiration of the TEA-21, Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU) was enacted in 2005. SAFETEA-LU allocated to highways, public transportation and safety programs 30 % increase over TEA-21 (Weiner, 2008).

In SAFETEA-LU, some issues about metropolitan and statewide transportation planning have been updated. States and MPOs were required to deliberate on the issue “as appropriate” with state and local agencies were responsible for environmental protection, conservation, natural resources and land use management in developing long-range transportation plan (Weiner, 2008: 251). Factor 4 in TEA-21 was expanded in SAFETEA-LU as such; protect and enhance the environment promote energy conservation, improve the quality of life including the guarantee of interests of bicycle, pedestrian and disabled people, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.

Environmental parts of the metropolitan planning have been revised such as; promoting consistency between transportation improvements and state and local planned growth and economic development patterns (SAFETEA-LU, 2005; cited by Weiner, 2008).

According to the act, statewide planning process had to be consistent with metropolitan and statewide trade and economic development planning.

Another essential point of this act is that, mandatory exemptions of bicycle and motorcycle and optional exemptions for public transportation vehicles, low-emission and energy- efficient vehicles on HOV lanes, have been increased (SAFETEA-LU, 2005; cited by Weiner, 2008).

Congestion Mitigation and Air Quality Improvement Program was continued and updated in such way to meet the requirements of Clean Air Act with urban transportation projects prepared by local governments. In addition to this, a great initiative to sustainable urban transportation, “Non-motorized transportation Pilot Program” was established and financially supported in order to make a network of bicycle and pedestrian and attain a certain increase in portion of non-motorized transportation in all transportation modes (SAFETEA-LU, 2005). Another new program was “Safe Routes to School Program”. It aimed to encourage school age children to go to their school by bicycle or walking. SAFETEA-LU established new programs to suggest alternative transportation ways additional or optional to automobile usage (SAFETEA-LU, 2005; cited by Weiner, 2008).

3.1.11 Strategic Sustainability Performance Plan (SSPP), Department of Transportation, 2010

With this plan, DOT aims to reduce Green house gas emissions and promote a safe, fast and efficient transport system. DOT also aims to “consider environmental measures as well as economic benefits, social benefits, and costs in evaluating projects and activities based on life-cycle return on investment” (p.4, SSPP, 2010). Promoting energy conservation, natural resource and ecosystem conservation, reduction of green house gas emissions, pollution topics and integration of these with transportation are committed by this plan. SSPP evaluates broadly the performance of the attainable aims and goals in sustainability (http://www.dot.gov/sustainability/sspp_2010.pdf).

3.1.12 Policy Statement on Climate Change Adaptation, Department of Transportation, 2011

Policy Statement on Climate Change Adaptation is a policy statement and also a guiding paper published by The United States Department of Transportation (DOT) in 2011 in order to adopt climate change adaptation strategies into its transportation planning, operations, policies and programs of DOT. DOT aims to mitigate causes and consequences of climate change caused by sectors including transport. DOT encourages State, regional and local transportation agencies to consider climate change impacts in their decision-making (www.fta.gov).

3.1.13 Transportation Planning for Sustainability Guidebook, 2011

Transportation Planning for Sustainability Guidebook was prepared by Georgia Institute of Technology for US Department of Transportation. According to this guidebook, UK is one of the leaders in the world about sustainable transportation and in USA Federal Highway Agency, American Association of State Highway and Transportation Agency and Department of Transportation have been supported by state lawmakers about transportation planning. However, it is also stated in this document that USA has no national policy on sustainable transportation. States and metropolitan areas have their own policies, programs and plans on sustainable urban transportation planning. Nevertheless, as described above in numerous acts, although the country does not have a clearly stated national policy on this matter, sustainable urban transport is promoted and enforced through legislations and particularly the funding mechanisms that these legislations regulate.

This guidebook includes sustainable transportation policies and programs on strategic planning, climate change adaptation plans, freight planning etc. and analyses how successful states were and finally present researches of different case studies concerning local, regional and state studies in USA. Furthermore, the guidebook explains that as of January 2009, 27 states had

adopted greenhouse gas reduction targets either by law or by executive order (p.17).

US Federal Transit Agency have also published other guidance documents listed below:

Table 4 Other guidance documents published by FTA

Guidance Document	FTA Program(s)
FHWA/FTA Clarifying Guidance on Implementation of SAFETEA-LU Planning Provisions	Planning
Congestion Mitigation and Air Quality Improvement (CMAQ) Improvement Program -- Final Program Guidance	Environment
Guidance for Determining De Minimis Impact to Section 4(f) Resources	Environment
SAFETEA-LU Environmental Review Process Final Guidance	Environment
Notice of Availability of Guidance on Section 6002 of the Safe, Flexible, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)	Environment

Source: www.fta.dot.gov

3.1.14 Summary and Evaluation

The legislation of the first state intervention to urban mass transportation was enacted in the 1960s. After establishment of Department of Transportation in 1966, National Environmental Policy Act and Clean Air Act was enacted consecutively in 1969 and 1970. As of the 1970s urban transportation processes had to be in consistency with environmental issues. Afterwards, ISTEA (1991) was the first in using the concept of intermodal instead of highway. From now on, urban transportation acts consisted other modes including, rail systems, bicycle and pedestrian. ISTEA also helped state and local governments address environmental issues. With this act, the Government started to clearly encourage local authorities to make traffic demand management, decrease the number of travel by motor vehicles, and rehabilitate pedestrian and bicycle spaces, all of which help to create a more sustainable urban transportation system. TEA-21 specified metropolitan and statewide planning process and SAFETEA-LU enhanced the process.

In US federal legislation system, specification of the urban transportation planning rules by state and allocation of budget to urban transportation programs and projects makes significant encouragement and restriction of spendable budget to allocated urban transportation programs and projects. Metropolitan planning organizations and states are guided by federal actors and laws in planning process. Before preparing an urban transportation plan/project, any local agency knows the allocated budget from Central Government, and the criteria that the plan/program must fulfill. This implementation encourages local governments to make more sustainable urban transportation plans and projects. Besides, previously specified allocation of budget to certain aimed projects makes resources apparent, fair, balanced and efficiently used (Öncü, 2007).

According to all the evaluation process of USA and as stated in Transportation Planning for Sustainability Guidebook (2011), it can be said that USA has no clearly defined and stated sustainable urban transportation policy. However it has very clear acts that ensure states and metropolitan governments to implement sustainable transport projects and spend parts of their budget for projects in sustainable urban transport modes. Therefore the Federal government defines and commits the principles of sustainable transportation by laws.

In summary, the USA case reveals that in order to attain sustainable urban transportation, there should be policies and/or clear acts for air pollution reduction, congestion mitigation, environment protection, intermodality, promotion of accessibility and mobility, reduction of fuel usage, parking, cycling and walking, traffic demand management, congestion pricing, increasing the numbers of vehicles using alternative fuels or clean energy, integrated transportation systems, consistency between transportation improvements and State and local planned urban growth, and greenhouse gas reduction (climate change mitigation). In United States, all these objectives are intended to be attained by clearly written acts and some guidance documents for state and local governments.

3.2. United Kingdom (UK)

In United Kingdom, the Government publishes White Papers in order to announce new changes in strategies, plans and targets that should guide central government agencies, local authorities as well as private companies that may be delivering transport services. In addition to the White Papers, which are policy framework papers, there are acts that are legislations or regulations that authorities must comply with. Furthermore, the central government produces guidance papers to local authorities to inform them and to guide those regarding planning strategies, processes and the implementation. These latter documents are called Planning Policy Guidance (PPG) and more recently Planning Policy Statement (PPS) documents. They are not just recommendations; they are strict guidance that local governments must follow in urban planning. In the following sections, acts, white papers and Planning Policy Guidance/Statement documents related to urban transport are described.

3.2.1 Road Traffic Reduction Act 1997: Draft Guidance to Local Authorities

The Road Traffic Reduction Act 1997 was enacted to guide local authorities in implementation. All local authorities should prepare a report containing: an assessment of the levels of local road traffic in their area and a forecast of growth in those levels (Traffic Reduction Act 1997, Article 2.1). In addition to this, the report must contain the targets for a reduction in the levels of local road traffic in the area or a reduction in the rate of growth in the levels of such traffic (Article 2.2).

By this act, local authorities are responsible for preparing local transport plans that aim to decrease vehicle traffic and the act implicitly guides local authorities to give priority to this matter (Öncü, 2007).

3.2.2 UK Transport White Paper, 1998: A New Deal for Transport: Better for Everyone

The need of this White Paper and a “New Deal” in transport planning is explained as the requirement of a transportation system that does not damage health, provides better standards of life without leaving a poorer world to the next generations. These statements clearly refer to a more sustainable transport system.

The main aim of White Paper is to increase personal travel choices by improving the alternatives and to secure mobility that is sustainable in the long term.

In this paper, more fuel efficient cars, less congestion on roads and less pollution by cars are among the items of the new deal.

White paper states that building new roads were not a solution to traffic congestion. The invalidity of “predict and provide” was pronounced. Application of the policies such as privatization and deregulation are criticized as being not helpful for pedestrians and also not in the public interest. It is stated that these are the reasons of the need for an integrated transport policy.

According to the White Paper, new deal for transport refers to a transport system that is safe, efficient, clean and fair. It is described as a new approach to transport policy that is not led by road building in order to fight congestion and pollution.

Integrated transport policy has the following purposes: (p.8)

- integration within and between different types of transport - so that each contributes its full potential and people can move easily between them;

- integration with the environment - so that people's transport choices support a better environment;
- integration with land use planning - at national, regional and local level, so that transport and planning work together to support more sustainable travel choices and reduce the need to travel;
- integration with policies for education, health and wealth creation - so that transport helps to make a fairer, more inclusive society.

Decrease in congestion, helping to reduce the need to travel and avoiding the urban sprawl that has lengthened journeys and consumed precious countryside are listed as objectives to be attained for a better standard of living. So planning guidance for the combination of a better transport and environment is revised.

The document states that the New Deal for transport means:

For better places to live

- cleaner air to breathe by tackling traffic fumes;
- thriving town centers by cutting the stranglehold of traffic;
- quality places to live where people are the priority;
- increasing prosperity backed by a modern transport system;
- reduced rural isolation by connecting people with services and increasing mobility;
- easier and safer to walk and cycle;
- revitalized towns and cities through better town planning.

Local transport plans are the main part of proposals for local authorities, who are expected to prepare their plans in compliance to these transport

strategies. Local authorities are supposed to implement new tools that are aimed to decrease pollution and congestion.

For local plans the New Deal for transport means:

- new local transport plans;
- integrated transport strategies for local needs;
- local targets for improving air quality, road safety, public transport and road traffic reduction;
- more certainty of funding;
- greater use of traffic management;
- new powers including road user charging and levies on parking to tackle traffic jams and traffic growth;
- new sources of additional funding for local transport: better for the environment and better for business;
- better interchanges;
- tackling the 'pinch-points' in transport networks that lead to congestion;

UK aimed to be more effective in the management of natural resources and make transportation easier to walk and cycle.

For a better protection of the environment the New Deal for transport means:

- a major effort to reduce greenhouse gases;
- reduce road traffic growth;
- greener, more fuel efficient vehicles through:

- better standards and tax incentives;
- minimize transport's demand for land, protect habitats and maintain the variety of wildlife;
- limit the visual intrusion caused by transport;
- reduce use of non-renewable materials/energy sources;
- ensure that environmental impacts are taken fully into account in investment decisions and in the price of transport;
- enhance public awareness of transport and environment issues.

For better health the New Deal for transport means:

- reduce pollution from transport;
- improve air quality;
- encourage healthy lifestyles by reducing reliance on cars, and making it easier to walk and cycle more;
- reduce noise and vibration from transport;
- improve transport safety for users, those who work in the industry and the general public.

Increase in CO₂ is a noteworthy point in the paper: “In the UK, emissions of CO₂ from road transport are the fastest growing contributor to climate change – the greatest global environmental threat facing the international community” (p.5). It is also stated that in the UK, transport's share of CO₂ emissions, the main greenhouse gas, has grown from around one tonne in eight in 1970 to more than one tonne in four in 1995, and is set to grow still further. Four-fifths are produced by road vehicles (p.19).

3.2.3 Transport Act 2000

Transport Act 2000 obliges to prepare “Local Transport Plans” to manage the local developments under the common national policies. “Each local authority must develop policies for promotion and encouragement of safe, integrated, efficient and economic transport facilities and services and carry out their functions so as to implement those policies” (Transport Act, 2000, Article108/1). Each local authority must also prepare a document on bus strategy and must regard the needs of elderly and disabled people.

Local transport plans have been prepared for the term 2000-2006 as first stage and state budget have been allocated to the local authorities according to these local transport plans (Öncü, 2007).

3.2.4 Transport Ten Year Plan, 2000

The UK Transport Policy Document was published in 2000, describing the government's vision for the UK's national transport network over the next 10-20 years. Its general aim is to tackle with congestion and pollution by improving all types of transport and it also aims a transportation network that makes less impact on the environment. Such improvements include high quality park and ride schemes in centers, better integration between land use and transportation, more light rail systems and modern, high quality public transport (Transport Ten Year Plan, 2000: 7).

Certain targets were listed in the document:

- congestion reduced below current levels, particularly in large urban areas
- accelerated take-up of cleaner vehicles to reduce air pollution and CO₂ emissions
- 50% increase in rail use, measured by passenger kilometers

- better integration of railways with cars, buses, taxis, bicycles and better links to airports
- higher standards of bus service on all major bus routes for London
- modern and integrated transport information, booking and ticketing services for local settlements
- safer cycling and walking routes, more 20mph areas and Home Zones for safer roads, particularly around schools.
- emissions of the most noxious air pollutants arising from road traffic should be about half the present levels by 2010.

3.2.5 Guidance on Walking, 2000: Encouraging Walking: Advice to Local Authorities

Guidance on Walking was published by the Department of the Environment, Transport and the Regions in order to guide local authorities about planning for and promoting walking. The Government aims to make walking more attractive and to increase the percentage of walking in all modes with application of proposals by local authorities. As it is seen below:

“We are asking local authorities to demonstrate they have a coherent strategy to encourage walking as part of their plans and to set local targets towards achieving it.”

Government aims to present conditions to encourage people to choose to walk rather than walking only if there is no alternative. Guidance paper states that over the last 50 years, local transport network have been developed on car rather than pedestrians. To reverse this, or balance it, local authorities should make good progress to attain more sustainable transportation. A few proposals are;

- “introducing pedestrianisation schemes or areas where vehicle access is restricted;

- providing separate and improved facilities for pedestrians and cyclists;
- measures to reduce the impact of traffic on pedestrians, including traffic calming and reduced traffic speeds, in areas of high actual or potential pedestrian use” (Guidance on Walking, 2000:15).

It is stated that well designed interchange points between pedestrians and public transportation makes walking attractive. According to this guidance, vehicle speed is one of the most important problems for pedestrians. To tackle with this traffic calming and enforcement cameras can be used.

Another point is that local authorities should aim to provide bicycle-friendly infrastructure for cyclists with cycle lanes or advanced stop lines.

3.2.6 Planning Policy Guidance 13, 2001 (Dept. for Communities and Local Governments)

Of the numerous Planning Policy Guidance (PPG), which are recently being named Planning Policy Statements (PPS), the number 13 is for urban transport planning. They are prepared by the Government after public consultation to explain statutory provisions and provide guidance to local authorities and others on planning policy and the operation of the planning system (www.communities.gov.uk).

According to the UK Government, in order to reach a strong economy, a fundamental instrument is a safe, efficient and integrated transport system. Therefore the Government in UK published Planning Policy Guidance 13 (PPG13) to integrate planning and transport at the national, regional, strategic and local level by promoting more sustainable transport choices both for carrying people and accessibility to jobs, shopping, leisure activities and services by public transport, walking and cycling and reducing the need to travel (p.4-5).

The most noteworthy points are the way the Government guide local authorities in what they do while preparing their development plans, considering planning applications, local walking strategy, travel plans and what they have to consider in designing, programming, relating transport with other usages and so forth. “Local authorities MUST take their contents into account in preparing plans and the guidance may also be relevant to decisions on individual planning applications and appeals” (www.communities.gov.uk).

Below there are examples on how the Government provides guidance to local authorities regarding sustainable urban transportation:

While preparing local development plans local authorities should:

- Manage the pattern of urban growth to make the fullest use of public transport (Article6.1)
- Make sure that daily activities are accessible by walking, cycling and public transport. (Article6.2)
- Make sure that the strategies in development and local transport plans are consistent. (Article6.6)
- Use parking policies to promote sustainable transport choices and reduce dependency of car usage(Article6.7)
- Plan to allocate more space for pedestrians (Article6.6)
- Make sure that disabled people, public transport users and motorists are taken into consideration (Article6.9)
- Make sure that new developments provide allocated spaces for bicycles, pedestrians, public transport (Article28)

Local authorities should promote more sustainable travel choices by;

- Ensuring that the interchanges are safe and convenient for walking and cycling (Article 48.1)
- Increase in using “park and ride schemes” to help promote more sustainable travel patterns(Article59)

While determining their “local walking strategy” they should:

- review existing and proposed routes for pedestrians and cyclists (Article 76.1, 80.1)
- Ensure to provide citizens pedestrian-friendly road crossings (Article77.2, 80.3)
- Ensure that traffic calming measures are taken into consideration in school and residential areas (Article77.3, 80.2)

Local authorities should control traffic management in order to:

- Reduce noise, local air pollution and accidents (Article66.1)
- Promote safe walking, cycling and public transport (Article66.2)
- Help to manage congestion especially in centers (Article 66.4)

Local authorities should prepare “Travel Plans” in order to attain:

- Reductions in car usage and increase in cycling, walking and public transportation (Article88.1)
- Reduced traffic speeds and improved road safety (Article88.2)

3.2.7 UK Transport White Paper, 2004: The Future of Transport

This document defines England’s transportation vision that is not only an economic view but also an environmental perspective. By saying this, they refer to a modern, efficient and sustainable transportation system.

The document defines “a long term strategy for a modern, efficient and sustainable transport system backed up by sustained high levels of investment over the next 15 years”.

It is stated that “The Future of Transport White Paper”:

- looks at the factors that will shape travel and transport over the next thirty years and
- sets out how the Government will respond to the increasing demand for travel, by maximizing the benefits of transport while minimizing the negative impact on people and the environment.

Growing economy makes an increasing demand for travel and the growth of car travel results in unsustainable patterns of travel behavior. So, it is stated that there is a need for a transport network that can meet the challenges of growing economy, increasing demand for travel, increasing congestion and also achieve environmental objectives (The future of Transport, p.12).

This means coherent transport networks with (The future of Transport, p.12):

- The road network providing a more reliable and freer-flowing service for both personal travel and freight, with people able to make informed choices about how and when they travel;
- The rail network providing a fast, reliable and efficient service, particularly for interurban journeys and commuting into large urban areas;
- Bus services that are reliable, flexible, convenient and tailored to local needs;
- Making walking and cycling a real alternative for local trips; and

Managing the growing demand for transport is vital before it damages environment, landscape, towns, cities and before the quality of life becomes

unacceptable. One of the principles is building no more roads until it is demonstrated that it is absolutely necessary.

The strategy is composed of three steps:

- Sustained investment: refers to the commitment of sustained investment to the transport networks, especially for the railways.
- Improvements in transport management: refers to provide to legislate the structure of the allocation and control of the public expenditure. Measures such as tolling on new roads and providing possibility of carpooling lanes are taken.
- Planning ahead: refers to the determination of the way of road pricing and mediate of the local, regional and governmental authorities to ensure that regional and local planning is based on a shared view of priorities.

3.2.8 Summary and Evaluation

In the UK, one of the first legislation related to sustainable urban transport was the Road Traffic Reduction Act of 1994. After that, Transport White Paper, 1998: A New Deal For Transport: Better For Everyone was published by the UK Government so as to create an integrated transport system as well as integrating transport policy with other sectors, such as land use, environment, education, health and economy. Then the 2000 Transport Act was enacted bringing the obligation of preparing Local Transport Plans. Consequently the Transport Ten Year Plan was also enacted. Afterwards, Transport White Paper, 2004: The Future of Transport was published. All of these documents provide a comprehensive framework and guidance regarding sustainable urban transport. As stated in Transportation Planning for Sustainability Guidebook (2011) in USA, UK is one of the leaders in the world about sustainable transportation.

In UK, the Government determines the problems on urban transportation planning, policy and process. In accordance with the common national policies, acts related to transportation matters have been enacted and then the Government has published Guidance Papers so as to guide local authorities for preparing local transport plans, determining the targets, plans, programs, projects and monitoring the implementation performances of local authorities. So, the Government directs local authorities in a consistent way and forces them to aim certain targets by acts.

There is a clear awareness regarding what sustainable urban transport is, what trends are unsustainable and what actions and projects are needed to reverse these trends. The acts, white papers and guidance documents are, therefore, valuable sources that clearly indicate how to plan urban transport systems. These are expected to create increased awareness of local authorities too since they need to comply with these acts and guidance documents.

In summary, the UK case reveals that in order to attain sustainable urban transportation there should be policies, acts and guidance papers for fuel efficiency, congestion mitigation, reduction of air pollution from transport, integrated transport, integration of transportation plans with development plans, walking and cycling, traffic reduction, traffic management, reduction of non-renewable materials/ energy sources, CO2 reduction, increase in rail transport, public transport improvement, park-and-ride and accessibility.

CHAPTER 4

METHODOLOGY

4.1 Context

Sustainable urban transport can be described as a transportation system that considers environmentally friendly, economically efficient and socially equitable solutions, and therefore promotes clean and renewable energy sources, automobile reduction, public transport improvements, more walking and cycling, etc. In order to attain a sustainable urban transport system, generally a combination of the following policies are required: encouragement of the travel demand management, encouragement of intermodality, particularly through improvements in urban public transportation systems as well as in cycling and walking infrastructure; implementation of a comprehensive parking policy that discourages car usage while possibly encouraging the use of vehicles with clean fuels; introduction of park and ride systems, travel cards, and charging measures such as congestion charging systems that can decrease car usage in city centers while raising revenues to be spent for improvement of infrastructure for alternative modes.

Clearly all these policies for creating a more sustainable urban transport system fall under the responsibility of local governments. In Turkey too, such policies and projects that concern urban areas are implemented by local governments. This means that for attaining sustainable urban transport systems, local governments must have the awareness, knowledge and capacity to implement the correct sustainable transport policies. Hence, in many countries in the world, in addition to legislations, recommendation documents and policy guidance papers are published by central governments in order to increase awareness, knowledge, and institutional

capacity of local governments for formulating and implementing sustainable urban transport policies, plans and projects.

4.2 Research Question, Goals and Objectives

The research question of this thesis is as follows:

Are the policy and legislation documents in Turkey sufficient to guide local governments towards creating sustainable urban transport systems?

The main aim of this thesis is to develop a set of criteria in order to assess whether or not the political and legislative framework of a country supports sustainable urban transportation, and then to apply these criteria to Turkey to assess whether the current policy documents and legislations can ensure that local governments implement policies and projects for more sustainable urban transport systems. The analysis also aims to show the strengths and weaknesses of the Turkish policy documents and legislations in this respect.

This focus on local governments is intentional because in Turkey, local governments are the implementation authority of urban transportation plan and projects. Lack of any control mechanisms of the urban transportation projects in Turkey is the origin of this study. Control the expenditure of local governments, managing and guiding of the development on sustainable urban transport projects in a comprehensive planning system can be attainable in case the central government guide and constraint local governments by acts, guidance papers and some kind of control mechanisms.

The good-practice case studies (United Kingdom and United State of America) are selected and analyzed both because they are best known examples, and because of the data availability, easy access to documents, and the documents being in the English language.

My objectives are;

- Investigate central government policy documents and urban transportation legislations in developed countries that are considered as good practices.
- Make a checklist of what policy statements, acts, guidance, recommendations etc., should be included in policy and legal frameworks of central governments in order to ensure that local governments' implementations result in sustainable urban transport.
- Review the legislation of Turkey's policy framework in case of urban transportation.
- Using this checklist to assess Turkey's policy framework and legislations regarding sustainable urban transport.
- As a result of the assessment detect the strengths and weaknesses in policy and legislation in Turkey
- Make proposals to adapt them to Turkey's policy framework and legislation on sustainable urban transport.

4.3 Methods of Analysis

The main tool of the analysis will be the checklist to be developed within this study. As described in the previous chapter, by investigating USA and UK examples, a checklist is constituted. The checklist is a result of the evaluation of the urban transportation laws and regulations, directly or indirectly affecting the transportation sector, and formal published policy documents.

In USA the following acts and some selected studies related directly and indirectly to sustainable urban transportation are analyzed.

- Urban Mass Transportation Act of 1964
- Department of Transportation Act of 1966

- National Environmental Policy Act of 1969
- Clean Air Act of 1970
- Clean Air Act Amendments of 1990
- Intermodal Surface Transportation Efficiency Act- ISTEA, 1991
- Energy Policy Act of 1992
- National Bicycling and Walking Study, 1994
- Transportation Equity Act for the 21st Century- TEA-21, 1998
- Safe, Accountable, Flexible, Efficient Transportation Equity Act- SAFETEA-LU, 2005
- Strategic Sustainability Performance Plan (SSPP), Department of Transportation, 2010
- Policy Statement on Climate Change Adaptation, Department of Transportation, 2011
- Transportation Planning for Sustainability Guidebook, 2011

In UK the following acts and common national policy papers are analyzed and a set of criteria are to be constituted so as to compare with the situation in Turkey.

- Road Traffic Reduction Act 1997: Draft Guidance to Local Authorities,
- UK Transport White Paper, 1998: A New Deal for Transport: Better for Everyone,
- 2000 Transport Act,
- Transport Ten Year Plan, 2000

- Guidance on Walking, 2000: Encouraging Walking: Advice to Local Authorities,
- Planning Policy Guidance 13, 2001,
- UK Transport White Paper, 2004: The Future of Transport

In Turkey, policy papers, some studies and laws in effect are to be investigated and then comparisons will be made with the situation in the above analyzed countries. The attainable aim is to put the case clearly to highlight both the strengths and inefficiencies in Turkey regarding laws, policy papers, guidance and sanctions.

- National Development Plans
- 3194 Development Law, 1985
- By-Law on Plan Making Principals, 1985
- 5216 Greater Municipality Law, 2004
- Energy Efficiency Strategy for Turkey, 2004
- Transport Master Plan Strategy, 2005
- 5393 Municipality Law, 2005
- Integration of Sustainable Development into Sectoral Policies Project (UNDP), 2007
- By-Law on Energy Efficiency in Transportation by General Directorate of Electrical Power Resources Survey and Development Administration, 2007
- Urbanization Congress, Ministry of Public Works and Settlements, 2009

- Transportation Forum, Ministry of Transportation, 2009
- Integrated Urban Development Strategy and Action Plan- (Kentges), 2009
- Climate Change Action Plan of Turkey- Transportation Sector Current Situation Analysis, UNDP, 2011

4.4 The Checklist

The questions below are produced from the analysis of USA and UK which is described in the previous chapter.

1. Is there a sustainable urban transportation aim explicitly stated?
2. Is there an energy efficiency policy?
3. Is there an environment and air quality policy?
4. Is there climate change policy related to urban transportation?
5. Is there a CO₂ reduction (air pollution) policy?
6. Is there a hydrocarbon and NOX emissions reduction policy?
7. Is there clean (alternative) energy and low emission vehicle policy?
8. Is there use of non-renewable materials/energy sources reduction policy?
9. Is there an integrated transport policy?
10. Is there a railway transportation policy?
11. Is there a water transport policy?
12. Is there a policy for consistency of transportation plans and programs with land use and development plans?

13. Is there a policy for the consistency of transportation planning with applicable central and local energy conservation programs, goals and objectives?
14. Are there policies for equal accessibility and mobility?
15. Is there a traffic demand management policy?
16. Is there a public transportation (improvement) policy?
17. Is there a bicycle policy?
18. Is there a walking (pedestrianization) policy?
19. Is there a traffic congestion policy?
20. Is there a car (traffic) reduction policy?
21. Is there a congestion charging policy?
22. Is there a park and ride policy?
23. Is there a parking (including pricing) policy?

The following table summarizes how these questions have been formulated and included in the checklist to be used in this study, by referring to whether they come from the analysis of USA or UK or the literature.

Table 5 The Analysis of USA, UK and Literature Survey

	USA	UK	Literature
1. Is there a sustainable urban transportation aim explicitly stated?		UK White Paper 2004	
2. Is there an energy efficiency policy?	ISTEA, TEA-21		UN Rio Conference, White Paper 2001, Green Paper 2007
3. Is there an environment and air quality policy?	Clean Air Act 1970, TEA-21	UK White Paper 1998, Ten Year Plan 2000, PPG13, UK White Paper 2004	White Paper 2001, World Bank 2002
4. Is there climate change policy related to urban transportation?	SSPP 2010, Policy Statement 2011, Sustainability Guidebook 2011		Kyoto Protocol, Common Transport Policy 1998, White Paper 2011
5. Is there a CO2 reduction (air pollution) policy?		UK White Paper 1998, Ten Year Plan 2000	White Paper 1992, OECD 1996, Kyoto Protocol
6. Is there a hydrocarbon and NOx emissions reduction policy?			White Paper 1992, OECD 1996, Kyoto Protocol

Table 5 continued

7. Is there clean (alternative) energy and low emission vehicle policy?	Energy Policy 1992, TEA-21	UK White Paper 1998	White Paper 1992, OECD 1996, Common Transport Policy 1998, World Bank 2002, Green Paper 2007, White Paper 2011
8. Is there use of non-renewable materials/energy sources reduction policy?		UK White Paper 1998	White Paper 2001
9. Is there an integrated transport policy?	ISTEA, TEA-21	UK White Paper 1998, Ten Year Plan 2000	White paper 1992, 2001, Green Paper 2007
10. Is there a railway transportation policy?		Ten Year Plan 2000	
11. Is there a water transport policy?			
12. Is there a policy for consistency of transportation plans and programs with land use and development plans?		UK White Paper 1998, PPG13	White Paper 2011
13. Is there a policy for the consistency of transportation planning with applicable central and local energy conservation programs, goals and objectives?	SAFETEA-LU		
14. Are there policies for equal accessibility and mobility?	ISTEA, TEA-21		White Paper 2001

Table 5 continued

<p>15. Is there a traffic demand management policy?</p>	<p>ISTEA,</p>	<p>UK White Paper 1998, PPG13</p>	<p>UN Rio Conference, World Bank 2002, White Paper 2011</p>
<p>16. Is there a public transportation (improvement) policy?</p>	<p>ISTEA,</p>	<p>UK White Paper 1998, PPG13</p>	<p>White Paper 1992, UN Rio Conference, World Bank 2002, White Paper 2011</p>
<p>17. Is there a bicycle policy?</p>	<p>ISTEA, Bicycling and Walking Study, SAFETEA-LU</p>	<p>UK White Paper 1998, Ten Year Plan 2000, Guidance on Walking 2000, PPG13</p>	<p>White Paper 1992, 2001, UN Rio Conference, OECD 1996, Green Paper 2007, White Paper 2011</p>
<p>18. Is there a walking (pedestrianization) policy?</p>	<p>ISTEA, Bicycling and Walking Study, SAFETEA-LU</p>	<p>UK White Paper 1998, Ten Year Plan 2000, Guidance on Walking 2000, PPG13</p>	<p>White Paper 1992, UN Rio Conference, OECD 1996, Green Paper 2007, White Paper 2011</p>
<p>19. Is there a traffic congestion policy?</p>	<p>Clean Air Act 1990, ISTEA,</p>	<p>UK White Paper 1998, Ten Year Plan 2000, PPG13</p>	<p>White paper 1992, 2001</p>

Table 5 continued

20. Is there a car (traffic)reduction policy?		Traffic Reduction Act 1997, PPG13	White paper 1992, White Paper 2001
21. Is there a congestion charging policy?	ISTEA,		Green Paper 2007
22. Is there a park and ride policy?		PPG13	White Paper 2001
23. Is there a parking (including pricing) policy?	ISTEA,		Green Paper 2007

The “Checklist” or “List of Criteria” is created by the analysis of sustainable urban transportation policy documents of USA and UK as well as the outcomes of the literature survey.

Water transportation is not explicitly stated in any document, but as an inevitable part of integrated public transportation, it was decided that water transportation should also be added to the checklist.

CHAPTER 5

ASSESSMENT OF POLICY AND LEGAL DOCUMENTS OF TURKEY: IS SUSTAINABLE URBAN TRANSPORTATION ENSURED BY THE LAW AND POLICIES?

5.1 Introduction

In this chapter policy and legal documents of Turkey are going to be investigated in terms of sustainable urban transportation. Then by comparison of US and UK; it is aimed to introduce strengths and weaknesses of policy and legal documents of Turkey in the form of a criteria checklist. At last, main findings will be explained and recommendations will be suggested at the end of this chapter.

The analysis is divided into three main groups: following the cases of USA and UK: policy papers of Turkey will be the first part. Then related guidance papers, acts and laws will be investigated and lastly nation-wide studies on sustainable urban transport will be investigated.

In the case of Turkey, under the policy documents; National Development Plans, Transport Master Plan Strategy, Integration of Sustainable Development into Sectoral Policies Project, Integrated Urban Development Strategy and Action Plan (Kentges) and Turkey's Climate Change Action Plan will take place.

In part of guidance papers on local authorities, which proved to be an important guideline and a binding document in implementation particularly in the UK system, there are no documents to be assessed in Turkey. The analysis on the acts, laws and legislation includes 3194 Development Act, 5216 Greater Municipality Law, 5393 Municipality Law, Energy Efficiency in Transportation Regulation by General Directorate of Electrical Power

Resources Survey and Development Administration (EIE), By-Law on Plan Making Principals (Plan Yapımına Dair Esaslara Ait Yönetmelik).

Last part is on nation-wide studies that may have an effect on national policies as was seen in the USA case, and this will include the Transportation Forum led by the Ministry of Transportation and the Urbanization Congress and Forum led by the Ministry of Public Works and Settlements.

5.2 Review of Policy and Legal Documents in Turkey

5.2.1 Policy Documents

5.2.1.1 National Development Plans

National Development Plans published by State Planning Organization were prepared for 5 year periods until 2005. A recent change has altered this and with the objective of complying with EU policies, the country started to prepare plans for 7 year periods. The National Development Plan in effect is therefore valid for 7 years, from 2007 to 2013. A separate transport section takes place in all plans, while urban transport has also become a separate section in the recent plans. A summary of urban transport policies of these plans are given below.

The Ninth National Development Plan (2007-2013)

Urban transportation is a separate part in the current National Development Plan. It is highlighted that “In the framework of sustainability in transportation in EU member countries, demand and traffic management practices and efficient use of information technologies have gained importance in solving urban transportation problems rather than capacity increasing solutions (Article 156).” Besides this, another problematic area is defined as follows:

“Rapid and unplanned urbanization, high population growth in big cities and increase in the ownership of motor vehicles aggravate the problems experienced in urban transportation such as excessive fuel consumption,

environmental pollution, accidents and traffic congestion. In highly populated metropolitan areas, necessary investments cannot be made at the required level and public transportation services cannot be improved due to high infrastructure costs and insufficient financial resources” (Article 157).

Policies are as below;

- “A comprehensive national urban transportation strategy that is sustainable and consistent with energy, environment, economics, housing and land use policies will be set up. This strategy will be binding for the public sector and indicative for the private sector (SPO, 2006).”
- “Urban transportation planning, which provides equal opportunities for all segments of the society, provides safe and continuous pedestrian movement, protects public interest, minimizes foreign dependency by utilizing domestic resources, and is participatory, sensitive to the environment and productive in economical terms, will be made. Evaluation of land utilization decisions together with impacts on transportation on all scales and preparation of urban transportation plans required by each scale will be ensured (SPO, 2006).”
- “Diversity and integration in urban transportation modes will be ensured through taking care of the original structure, dynamics and potentials of each city (SPO, 2006).”
- “Towards creating a sustainable urban transportation system within the EU harmonization process, pedestrian and bicycle transportation and public transportation modes will be prioritized and the use of these modes will be encouraged (SPO, 2006).”

- “Operation of public and individual transportation modes in a system, where they do not compete with each other and amongst each other will be ensured (SPO, 2006).”

The Eighth National Development Plan (2000-2005)

In the Eighth National Development Plan a separate urban transportation part exists. Firstly current situation of plan period is analyzed.

- Due to the lack of a Master Plan on Transportation, problems regarding nearly all sub-sectors of transportation are being tackled in an unplanned way, without any correlation and on short-term basis.
- Urban transportation problems related to authority, responsibility, organisation, financing and legislation are gradually increasing. Satisfactory improvement could not be achieved concerning the national standards and policies.
- Failure to integrate urban developments with mass transport systems leads to increasing use of private motor vehicles.

Urban transportation objectives, principles and policies that encourage sustainable urban transportation in the Eighth National Development Plan are (SPO, p.200);

- “Urban transportation problems relating to authority, responsibility, organization and legislation shall be eliminated.
- Realization of an urban transport structure compatible with the planned development of the city shall be ensured.
- Accessibility and quality of the mass transport services shall be enhanced.

- Transport and traffic plans shall be prepared for cities over a certain population.
- The level of service provided for the pedestrians and cyclists shall be improved.
- Integration of suburban rail operated by the General Directorate of Turkish State Railways, with urban transport system shall be ensured and the quality of services shall be enhanced.
- Necessary measures shall be taken to get effective use of maritime transport means in urban transportation.”

Legal arrangements related to urban transportation planning are listed as follows (SPO, p.201);

- “Legal arrangements shall be made concerning the authority, responsibility and organization in urban transportation.
- Necessary legal arrangements shall be made for the preparation of urban transport and traffic plans differing from each other as for their scope and methods according to the characteristics and population of cities.”
- Policies in relevance to the externalities of urban transportation are also proposed:
- Policies towards diminishing greenhouse gas emissions within the sector that cause climatic changes shall be formulated and emission inventories of the transportation sector shall be worked out.

There are no other environmental policies relevant to environmental effects of transportation sector although the above policy is important in showing the awareness of climate change effects of the transport sector.

The Seventh National Development Plan (1995-2000)

According to the Seventh National Development Plan, parallel to the rapid increase in number of vehicles, service levels of public transportation systems have fallen and railway systems could not have been integrated with other public transportation systems (p.146). These resulted in unproductiveness and a crisis in urban transportation. To solve urban transportation problems, urban transportation plans and land use plans will be integrated and investments will be done according to these long term plans (p.148). Institutional departments that will manage urban transportation activities will coordinate and control in national and local level (p.152). In the Seventh National Development Plan Process, there are no policies or measures in transportation part for reducing energy consumption and greenhouse gas emissions caused by urban transportation. On the other hand environmental policies were considered in this plan and it was suggested that environmental impact of transport is controlled. Not in the transport part of the document, but in the environmental protection part, there is an emphasis on sustainable development and the plan prioritizes integration of environment and economy, which becomes an important policy beginning from the Seventh National Development Plan.

The Seventh Plan also proposed that Urban Transport Master Plan of Istanbul should be prepared in order to balance the use of highways, railways and sea transportation in city (p.186).

The Sixth National Development Plan (1990-1994)

There is no separate urban transportation part in this plan. The only related topics are; efficient legal precautions will be taken in order to prevent toxic gasses caused by vehicles' energy consumption (Article 694) and urban transportation investments will be realized parallel to long-term, public transportation priority plans that are consistent with land use plans (Article 692).

The Fifth National Development Plan (1985-1989)

There is no separate urban transportation section in this plan either, and except for the following sentence no policies were included with reference to urban transportation: "In cities, transportation plans will be carried out with urban development plans" (Article 416/10).

The Fourth National Development Plan (1979-1983)

There is no separate urban transportation section in this plan except for the following sentence: "Urban public transportation will be improved" (p.663).

The First, Second and Third National Development Plans do not have policies regarding urban transportation.

5.2.1.2 Energy Efficiency Strategy for Turkey by General Directorate of Electrical Power Resources Survey and Development Administration, 2004

Improving energy efficiency in Turkey is the general objective of the project and the overall objective is improving the energy efficiency in the final energy consumption sectors. Measures aiming at energy efficiency in transportation, which is within the scope of this thesis, was carried out in the strategy paper and stated as follows:

- To increase overall efficiency of urban public transport.
 - Promote wider use of alternative fuels, such as CNG (compressed natural gas) for fleets (e.g. Urban Public Transport).
 - Analyze and promote cost-effective hot water solar collector systems for car/ fleet cleaning (e.g. at Urban Public Transport companies)
 - Decrease fuel consumption

- To strengthen institutional and administrative bodies.
 - Ensure effective implementation of emission regulation for private vehicles and urban public transport fleets
 - Implement public awareness campaign to stimulate resource saving driver behavior
- Ensure coordination in the process of transport sector master planning
 - Improve the framework conditions for municipalities in planning public transport mode planning (light rail, boats).

In terms of creating a sustainable urban transport, the policies formulated in this Strategy Document are worth noting. If implemented by local governments, they can help reduce the petrol dependency as well as emissions and climate change effects of the urban transport sector.

5.2.1.3. Transportation Master Plan Strategy, Ministry of Transport, 2005

Since the 1990s, Development Plans in Turkey proposed that a comprehensive nation-wide transportation plan is prepared. The Ministry of Transport took on this responsibility and through cooperation with the universities in the country, a study was carried out. However, the originally planned outcome was to be a transportation plan that proposed explicit actions and investments, whereas the actual outcome is only a strategy document without the action plan. Still, this document stands as an important transportation strategy for the country. The document includes national, international, regional and urban transport issues.

In this strategy document, urban transportation problems in Turkey are listed as follows:

- Because of the lack of integration between urban development plans and transportation plans, urban transportation

infrastructures are realized project-base and independent from other decisions and without coordination to any urban plan.

- Road transport is dominant in passenger transport in cities and service quality is low.
- Urban transportation infrastructure is not efficiently used.
- Urban transportation infrastructure (road, junctions, transfer points, car park areas etc.) are insufficient in metropolitan cities.
- Traffic safety is low and transportation pollutes environment.
- Cities and local governments have no car parking policies. Current by- law on car parking is insufficient to provide minimum car parking to flat per house and m² per working place.
- Some of transportation projects are prepared without consideration of principles of sustainability and public interest.
- No standards exist in urban transportation infrastructures. There is no criterion on what conditions a junction is controlled with signaling or with a grade-separation.

Therefore, local governments make their urban transportation interventions without upper scale plan and standards.

Aim at urban transportation in Transportation Master Plan Strategy can be described as to minimize costs to users, operators, and the country, and to maximize contribution to economic and social development that affects urban development positively and creates modern systems in order to create a better urban life quality. To attain these aims policies are formulated as follows:

- Human oriented transportation systems, as opposed to vehicle oriented

- Participatory planning, decision, and implementation approach
- Efficient and effective use of resources
- Maximization of the usage of current urban transportation infrastructure capacity
- Environment, urban, human and history friendly approach,
- Sustainable transport
- Contributing to the provision of equality in different parts of society

The Strategy Document's proposals for urban transportation are as follows:
(p 8-20)

- City growth should be controlled by urban plans
- A planning approach that minimizes car use that creates pedestrian oriented, environment friendly transport that aims sustainable development and prioritizes public interest and participation should be adopted.
- Planning, implementation, operating and control mechanisms should be integrated.
- Transportation investments should be comprehensive and plan oriented.
- The solution of majority of urban transport and traffic problems is in improving public transportation.
- The main aim is to use current urban transportation infrastructure efficiently. Therefore, physical integration, lane- route-time integration, common ticket system and fare integration should be provided.

- Standards and transfer points on railway systems should be planned.
- Service levels on public transportation systems should be improved.
- Technological improvements to minimize car use should be adopted.
- Pedestrian and bicycle transportation should be enabled and encouraged.
- Car parking policy should be prepared and implemented.
- Public bus transportation should be improved and encouraged.
- Sea transport should also be improved and encouraged in cities that have sea and/or river transport opportunities.
- Para-transit systems (such as dolmuş) should be used in appropriate routes.
- Restrictions on congested regions should be brought up in metropolitan cities and preparations should be begun.

5.2.1.4 Integration of Sustainable Development into Sectoral Policies Project, UNDP, 2007

The integration of sustainable development into sectoral policies project is a policy document organized and funded by UNDP in order to inspect problem areas in all sectors in terms of sustainability, and encourage and fund entrepreneurs to invest in sustainable areas. In the context of the thesis, only sustainable urban transportation issues will be discussed below. Findings regarding the urban transport sector are as follows:

- Urban transportation needs to be handled with sector integration such as energy integration in development plans. Preparing urban transportation plans without consideration of comprehensiveness and sustainability causes environmental and social problem areas (p.34). It is declared in the report that during the Seventh National Development Plan Process, no implementation of any proposal had existed on sustainable urban transportation policies or systems that contribute to energy consumption and create greenhouse gas emissions (p.83).
- Energy efficiency is an important area in sustainability. In Turkey, because of having energy oriented sub-sectors, industry is the first sector considered in terms of energy efficiency. Developments and improvements in energy efficiency in transportation and building sectors have not been realized comprehensively yet (p.162).

5.2.1.5 Integrated Urban Development Strategy and Action Plan, 2010-2023, Ministry of Public Works and Settlements (Kentges), 2009

Integrated urban development strategy and action plan, shortly named as Urban Development Strategy (Kentges), is a national framework document that aligns urbanization principles with sustainable development principles. It associates sustainability with land, housing and transportation policies.

Urban Development Strategy is constituted by objective areas, strategies and actions according to each related topic.

Strategy 1 is “in the work of spatial planning, policies, programs and plans will be developed in relation to comprehensive transportation systems that may be implemented according to the size of settlements (p.25). Actions of strategy 1 are;

- Legislative arrangements will be made to ensure harmonization and integration between urban transportation plans and city plans.
- Urban transportation plans will be drawn up and implemented by protecting environmental, technical, economic and social values.

Strategy 2 is “regarding urban transport, development of pedestrian and bicycle transportation facilities will be ensured in line with universal design principles” (p.26). Actions of strategy 2 are;

- Legal arrangements will be made in relation to guides and design criteria to expand pedestrian and bicycle paths. This means Transport Master Plan and city plans should involve pedestrian and bicycle paths.
- In order to expand pedestrian and bicycle paths, plan decisions will be developed and implemented effectively.

Strategy 5 is “regarding urban transportation plans, the principles of accessibility, safety, comfort, reliability, sustainability, cost and efficiency will be ensured”. Actions of strategy 5 are;

- The necessary arrangements will be made to make urban transportation and traffic services effective. It refers to the arrangements of parking policies, restrictions and regulations in city centers and discouraging car use in centers by restrictions of car parking and road capacity and improved public transportation services.
- The service quality and technological level of public transport systems will be improved. It means designing of transfer stations for public transportation, integration of time schedules with information technologies, and ticket and fare integration.

- The public transport systems will be made environmentally friendly. It refers to the use of clean fuels and vehicle types in public transportation.

5.2.1.6 Climate Change Action Plan of Turkey- Transportation Sector Current Situation Analysis, UNDP, 2011

Turkey's Climate Change Action Plan which is developed through a participatory process with government institutions, private sector establishments, non-governmental organizations and universities, is Turkey's strategy document in the field of climate change. The preparation of the plan was supervised by the Ministry of Environment and Forest.

Transportation sector is responsible for 17% of CO₂ equivalent greenhouse gas emissions in Turkey (TUIK, 2011; cited in UNDP Turkey, 2011). This rate is lower than that in developed countries because the number of trips per person and length of trips are much higher in developed countries than in developing countries like Turkey and energy efficiency of other sectors that create CO₂ emissions has not increased enough in Turkey as it has in developed countries (UNDP Turkey, 2011).

On the other hand, from 1990-2008 CO₂ emissions created in the transportation sector increased 44 % in the world, while in the same period CO₂ emissions created in the transportation sector increased 78 % in Turkey (ITF, 2008).

"Urban transportation has an essential share in CO₂ emissions" (UNDP Turkey, 2011, p.35). CO₂ emission created by road transport in Istanbul has increased by 37% in the period of 1990-2007 (Gerçek and Demir, 2008 cited in UNDP Turkey, 2011). Increase in number of private car ownership in cities and hence increase the proportion of travel made by private cars causes increase in CO₂ emissions in the transportation sector. Uncontrolled city growth encourages increase in trip length by means of dispersion of urban activities and especially low density residential areas in periphery of cities.

The document reviewed policies and plans in Turkey and noted that the Ninth National Development Plan had a goal to create sustainable urban transportation through improvements in pedestrian, bicycle and public transportation systems. The noteworthy point is the criticism by the Climate Change Action Plan that the proposed strategies in National Development Plans have not been effectively implemented to date (UNDP Turkey Report, 2011).

In terms of Legislative and Institutional Framework, the document reviews the By-law on Energy Efficiency in Transportation by General Directorate of Electrical Power Resources Survey and Development Administration, and states that it contains procedures and principles to decrease unit fuel consumption of motor vehicles, increase efficiency standards of vehicles, make public transportation become widespread and ease traffic flow in cities. It is stated that no measures are considered to improve and increase pedestrian transportation (UNDP Turkey, 2011).

By-Law on Decrease of Sulfur Ratio in Some Fuel Types was enacted in 2009 and this is also considered as important in terms of its contribution to decrease transportation oriented emissions (UNDP Turkey, 2011).

“It is worldwide accepted that railway transportation is environmentally friendly, less polluting, and a more sustainable way of transportation” (UNDP Turkey, 2011, p.34). Draft Law of Railways, which has not been enacted yet, aims to improve and develop railways and increase its share of carrying passengers and freight among other transportation types (UNDP Turkey, 2011).

The document also reviews Economic Tools in Turkey that may help reduce transportation sector’s contribution to climate change. It states that a maximum 5% biofuel addition to fuels is permitted in Turkey and 2% of this is exempt of Private Consumption Tax (ÖTV). This application encourages a decrease in greenhouse gas emissions but according to experts this ratio is very low (UNDP Turkey, 2011).

Under the review of Physical Investments and Applications, the document states that urban rail projects like metro, light rail systems, trams are realized in Ankara, Istanbul, Izmir, Bursa, Antalya, Eskişehir, Konya and Kayseri. Metrobus project in Istanbul was started in 2006 and became an efficient public transportation vehicle in Istanbul (UNDP Turkey, 2011). In Istanbul and Ankara, public transportation vehicles that use natural gas were bought. These applications are likely to contribute to the decrease in greenhouse emissions.

On the other hand, as stated in the document, air taxi and sea taxi applications encourage not public but private transportation. (UNDP Turkey, 2011). Grade-separated junctions and road expansion applications in city centers encourage private car use and higher speeds. They are not pedestrian and environmentally friendly. (UNDP Turkey, 2011).

Seferihisar in Izmir is the first slow city that prioritize environmentally friendly, pedestrian and bicycle transportation and the city also develops sun energy motorcycle in this context (UNDP Turkey, 2011).

According to Draft Climate Change Action Plan aims and goals regarding urban transportation are as follows:

(1)Restructuring urban transportation towards a more sustainable system. Under this aim, following goals are set:

- (1.1) Restricting emission growth rate caused by private car use in urban transportation;
 - Development and rehabilitation of public transport systems; under this action area, the following actions are of importance to the theme of this thesis: development of bus ways and bus rapid transit systems that operate on their own right-of-way; development of public transport modes, including rail alternatives; using current railway infrastructures in urban

transportation system; using railway and water transport effectively in cities that have these opportunities.

- Integration of public transportation systems with each other and with other transport modes. Under this action area, the following actions are of importance to the theme of this thesis: integration of fares, time and routes; creating bicycle parking and park & ride areas in public transport transfer points; creating easy accessible station and stop areas of public transportation for pedestrians.
- Regulation of ticket system and ticket quantity by means of encouraging public transportation use. Under this strategy, the proposed actions are as follows: regulation of public transportation fares to encourage public transportation; improving combined ticket systems; applying low fares for park & ride areas.
- Increasing the use of non-motorized transportation modes. Under this action area, the proposals are as follows: creating bicycle network in cities; creating bicycle park areas, pedestrianized roads and areas; promoting pedestrians to access everywhere by foot.
- Implementation of urban planning approaches by means of using public transportation, pedestrian and bicycle transport. Under this action area, the following proposals are of importance to the theme of this thesis: planning new development areas on main public transportation routes; encouraging slow city applications.
- Using travel demand management tools for discouraging private car. Actions are as follows: decreasing capacity of roads allocated to the private car; decreasing capacity of car parking

areas; applying car park pricing in city centers to discourage driving into the city center; evaluating congestion charging possibilities in city centers.

- Controlling vehicle density in traffic. Proposed action is to control empty taxi in traffic.
- (1.2) Taking local precautions that encourage the use of alternative fuels and clean vehicles until 2020:
 - Increasing use of alternative fuel and clean vehicles in public transport vehicles.
 - Realization of pricing policy of private cars that encourage the usage of clean fuels and clean cars.
- (1.3) Establishing legislations, institutions and preparation of guidance papers on sustainable urban transportation until 2014.
 - Restructuring of legislation. Under this action area, the proposed actions are as follows: preparing and enacting Urban Transportation Law and By-Laws; preparing transportation plans in all scales in accordance with the urban development plans and master plans; create a legal framework for traffic impact assessment; introduction of legislation that obliges major investments in cities to be prepared in accordance with the urban development plans and urban transportation plans; regulation of related legislation to make it obligatory to include bicycle paths and pedestrian ways in urban development plans and transportation master plans; a review of the existing legislation on energy efficiency in urban transportation.
 - Preparation of guidance papers that guide local governments in urban transportation planning and project implementations. Under this action area, the following actions are in the scope of

this thesis: preparing a National Urban Transportation Strategy; preparing guidance papers for local governments including topics of transportation planning, travel demand management, pedestrian transport, planning of urban rail systems.

(2) Spread the use of technologies for alternative fuels and clean vehicles.

- (2.1) The main goal under this aim is to make legislative regulations to increase the use of alternative fuels and clean vehicles until 2016 and improve capacity. Under this aim, the action areas are as follows:
 - Regulating of legislation on CO2 emissions of new private vehicles
 - Constituting of tax and pricing systems that restrict green house emissions of motor vehicles.
 - Increasing the institutional capacity in the transport sector in terms of climate change mitigation

(3) Increase efficiency of fuel consumption in transportation. (This aim is not directly related with urban transportation.)

According to all above, Turkey is at the starting point in applications of sustainable urban transportation. This is of course the case, provided that the proposals are effectively implemented. Some important improvements and applications are stressed in the document but insufficiency and incomprehensiveness is faced in most areas in urban transportation.

Turkey needs to take precautions and adopt them to legislations in order to attain sustainable urban transportation.

5.2.2 Guidance Papers, Acts & Laws

In Turkish policy and legislation documents of urban transportation there are no guidance papers for local governments in order to guide the way of preparing projects and implementing according to policy papers, acts and laws. The absence of guidance papers to local governments is an important deficiency of policy and legislation of Turkey on sustainable urban transportation, which will be further discussed in the study. Laws and By-laws of Turkey on sustainable urban transportation will be examined below.

5.2.2.1 3194 Development Law, 1985

3194 Development Law regulates the procedures and principles of planning of settlements and development of buildings with respect to technical, health and environmental conditions.

In 3194 Development Law and by-laws that constitute current development planning system in Turkey, main aim is to define principles of regulation of new development and buildings in urban areas. The legislation only focuses on new development and there is no consideration of the environment in the sense of contemporary environmental protection and ecological principles that are integral parts of sustainable urban planning.

There is no regulation on any kind of urban transportation plans, projects and no certain application rules on pedestrian and bicycle lanes except determining the distance between road and building in each parcel, disposition and ownership relation between owners

5.2.2.2 By-Law on Plan Making Principals, 1985

The law describes the procedures of making a plan and has no articles on the outcome of the plan. What is meant by this is that the law does not prescribe what kind of an urban environment, urban space or built environment is to be created as a result of the plan-making. Therefore, the

plan does not include any policies for creating sustainable urban environment or sustainable urban transport.

There is no regulation on any kind of urban transportation plans, projects and no certain application rules on pedestrian and bicycle lanes except designing pedestrian paths with a minimum width of 7 meters and traffic roads with a minimum width of 10 meters.

5.2.2.3 5216 Greater Municipality Law, 2004

According to this law in Turkey's legislation, the duties of greater municipality on urban transportation are described as follows:

“Preparing (or have some other party preparing for the greater municipality) and implementing the greater municipality transportation master plan,

Planning transportation and public transportation services and providing the coordination between these systems,

Determining all kind of public transportation services and vehicles operating on road, sea, water and railway transportation,

Determining number of private taxi, public transportation ticket fares, time and routes and all kind of public transportation stops,

Determining and operating or make some other party operating or renting vehicle park areas on highways, roads, avenues, streets, square and so forth,

Executing all traffic regulations and arrangements which are among the duties of municipalities.”

In the Municipality and Greater Municipality Laws, there are no statements about environmentally friendly, economically efficient and socially equitable transportation approaches. In addition to these, there are no clauses, recommendations, or assigned responsibilities to implement travel (traffic)

demand management, energy efficiency measures, car reduction or restriction measures, bicycle and pedestrian projects, traffic congestion mitigation policies, charging policies in crowded central areas, an integrated approach to the planning and operation of public transportation systems, integration of transport plans and operation with environmental goals and land use policies, or projects for more usage of renewable energy by private and public transport vehicles. Determining the policy approaches in legal documents can make transparency regarding the implementations and actions of local governments. Unfortunately the current case is far away from transparency and especially this law strongly authorizes the Greater Municipalities on the way to make applications on its own. While they are given the responsibility to make transport plans, there is no guidance on what the goal and content of these plans should be.

5.2.2.4 5393 Municipality Law, 2005

This law regulates the principles of establishment, organs, management, duties, authority and responsibilities of municipalities.

The law gives the local authorities to plan and operate public transportation systems including water, road, railways (Article15-f).

5.2.3.5 By-Law on Energy Efficiency in Transportation by General Directorate of Electrical Power Resources Survey and Development Administration, 2007

This by-law includes procedures and principles related to decreasing unit fuel consumption of motor vehicles, increasing efficiency standards of vehicles, making public transportation become widespread and establishing increase in traffic flow in cities.

- In order to attain effective, efficient and easy traffic, travel demand management, intermodal transportation systems, traffic management, signaling boards and electronic road guidance

systems are proposed to be implemented by related institutions in compliance with national and international standards.

- Alternative routes such as ring roads are encouraged to be used for transportation rather than passing through congested city center.

Practices related to decrease of private car use in city centers are listed in the legislation. According to these:

Municipalities should;

- Provide car parking areas in settlement plans and in city entrances of urban transformation projects and improve methods for people to leave their cars at parking areas to use public transportation systems.
- Make applications to decrease car use in city centers.
- Prioritize intermodal transportation systems especially in public transport stops.
- Prioritize public transportation vehicles that use natural gas in cities that have natural gas distribution network.

For taxi;

- Taxi stations with telephone and wireless access as well as taxi pockets in city centers should be made widespread to prevent unnecessary waiting outside their stop areas.

For urban transportation plans;

- Greater municipalities and municipalities outside the boundaries of greater municipalities that have populations larger than 100 000 have to prepare an urban transportation master plan. This plan is

to be prepared for 15 years period and revised every 5 years. City plans and sustainable urban transportation plans should be integrated to each other.

- While urban transportation plan is being prepared, macro plans that prioritize ring roads, railway systems, new settlements and transportation between them should be prepared.
- Municipalities should provide car park areas, design and implement junctions and enlarge roads in order to release congested traffic in insufficient roads of city centers.
- Urban transportation plans should propose increased railway investments in order to encourage public transportation.
- Traffic safety and continuity should be provided to increase energy efficiency and decrease fuel consumption in urban transportation.
- Municipalities should consider fuel consumption in traffic flow while determining urban transportation routes and make bicycle ways and park areas in topographically possible areas.
- Car park areas should be determined according to urban traffic by City and County Traffic Commissions and car park areas should be operated efficiently.

It can be seen that while majority of these proposals are in line with sustainable transport principles, there are few proposals that cannot be considered within the scope of sustainable transport planning. The most striking of these is the article that proposes local governments to enlarge their roads in order to release congested traffic and ease vehicle flows. This is proposed as a measure to be implemented in city centers. This approach falls under the “predict-and-provide” approach described in the Second Chapter of this study. It is well known in transport planning today that increasing road capacities in city centers creates more traffic and encourages

more private car usage and therefore not sustainable. Ring roads are also questioned today since they increase trip lengths and result in more energy use and emissions. On the other hand, all clauses regarding public transport improvement and bicycle networks are in line with sustainable transport principles. However, the legislation lacks any measures on pedestrian transport and accessibility.

5.2.3 Studies

Studies are nationwide workshops or conferences that are generally carried out by Ministries on the subject of sustainable urban transportation. There are a number of important documents in the USA too that fall into the same category. While the “proceedings” of these studies are not legal or binding documents, they often have an effect on nation-wide policies and increase awareness of authorities that implement plans and projects. In Turkey too, the Urbanization Congress and Transportation Forum can be considered under this category.

5.2.3.1 Urbanization Congress, Ministry of Public Works and Settlements, 2009

This is actually the background document of the Urban Development Strategy (Kentges) that was described above. The study was carried out over a period of 8 months with the participation of various stakeholders, such as experts from ministries, representatives of NGOs, private companies, and academics from universities. A comprehensive analysis was made followed by a detailed list of strategies and actions in a number of fields related with urban development. One of these fields was urban infrastructure and transport.

In the study, the current situation of urban transportation is defined as follows:

- Global warming that is caused by greenhouse gasses is considered as one of the most important global issues. Experts predict that transportation will be the primary sector that affects global warming from year 2010 onwards. Transportation oriented CO₂ emissions reached 40,5 million tones increasing by 55,8% in the period of 1990- 2004 in Turkey (Climate Change 1. National Declaration, 2007 cited in Urbanization Congress, 2009). These increases are to a certain extent due to the increasing use of private car in urban transportation.
- In Turkey, the increasing demand of traffic is met by building new roads, building junctions with bridges, expanding road capacities while world's developed countries abandoned such approaches and apply traffic demand management, environment-friendly transportation, pedestrianization and so forth. These unsustainable temporary solutions in Turkey encourage new car traffic and congestion will be reborn in the course of time.
- Road expansion applications cause congestion in cities and encourages car oriented urban transportation rather than green modes. Furthermore, this congestion encourages and causes increase in air pollution.
- Public transportation is not developed enough. Sea and waterway transportation as well as railway commuter transportation is very low among all public transportation modes even though many cities have these opportunities. The Eighth National Development Plan and Turkey State Railways Restructuring Project proposed to transfer authority to local governments about whole integration of transportation systems and services of suburban rail (Urbanization Congress, 2009).

- Non-motorized transportation modes; i.e. pedestrian and bicycle transportation, are important in sustainable urban transportation but this topic is generally neglected in the Turkish planning system. In recent years bicycle transportation planning in Konya and Bursa were prepared in the scope of urban transportation plans.
- The absence of “Urban Transportation Act” is emphasized in the study. The current urban transportation acts are considered partial and dispersed to many other laws. Conflicts between laws are specified in Urbanization Congress in 2009.

Problem Areas in Urban Transportation are defined in this study, and the ones that are also related with the theme of this thesis are listed below:

- Lack of integration between urban plans and urban transportation plans. Strategies to overcome this problem are:
 - Provide coordination between urban planning and urban transportation planning; make it obligatory to make a transportation study and Traffic Impact Analysis in new development areas
 - Improve and encourage public transportation, pedestrian and bicycle transportation and prevent tendency of spread, low density, automobile dependent settlements in order to minimize travel made by private car: new amendments of By-Law on Plan Making Principals for development models, decreasing traffic, improvement of public, pedestrian and bicycle transportation; no new residential areas will be opened before proposed building in planned areas is completed.
 - Support the use of public transportation with urban plans; new amendments to make it obligatory to plan main public

transportation routes that are integrated with land use decisions.

- No consideration of environmental effects of transportation investments in planning. Strategies to overcome this problem are:
 - Assessment of environmental and urban effects of all scale transportation investments: environment friendly, energy efficient transportation modes; new amendments for precautions and solutions regarding possible problems and externalities in natural, cultural and historical environment that transportation investments may cause.
- Problems caused by private car based policies. Proposed strategies are:
 - Decrease of car use in cities. Under this strategy, the following proposed actions are of importance to the theme of this thesis: decreasing car park capacities, applying car park pricing, creating pedestrianized areas, creating main corridors that supports transit traffic and congestion pricing policy in city centers; increasing control for on-street parking; decreasing the capacity of roads allocated to private cars;
- Under-developed urban public transportation systems. Strategies to overcome this problem are:
 - Prioritize public transportation modes that have minimum negative effects to environment that have high energy efficiency, and are most acceptable in terms of investment and operating costs. Under this strategy, the following proposed actions are of importance to the theme of this thesis: planning railway systems; evaluating metrobus and bus lane

alternatives; choosing environment friendly technologies and fuels.

- Develop public transportation considering current infrastructure opportunities and physical and geographical opportunities. Under this strategy, the following actions are proposed: developing water transport in possible cities; using current railway systems effectively; providing route, time and fare integration of public transportation modes; planning minibuses, services and dolmus (the paratransit transport mode in Turkey) as supporting not competing elements of public transportation.
- Create the safe, easy and comfortable access to public transportation systems. Under this strategy, the proposed actions are as follows: Planning integration between public transportation stations, routes and pedestrians; making accessible public transportation for all, including differently able people; reserving bicycle parking areas at public transportation stations; planning park and ride areas.
- Improve service quality of public transportation systems. Under this strategy, the following proposed actions are of importance to the theme of this thesis: making public transportation more attractive, safe, comfortable and clean; informing people for schedules and routes; arranging fare system as an attractive point for public transportation.
- Limited consideration of non motorized transportation modes. Strategies to overcome this problem are:
 - Support bicycle as a mode of urban transportation. The proposed actions are as follows: making bicycle plans and pedestrian plans; creating bicycle road network; constituting information systems for bicyclists; creating bicycle parks and

service points.

- Build infrastructure of bicycle transportation in order to encourage their safe usage. The actions are; supporting separated bicycle lanes, giving priority to bicycles at all traffic junctions and intersections.
- Enable pedestrian's mobility by encouraging pedestrian transportation. The proposed actions are as follows: supporting choices of pedestrianization in urban network, applying traffic calming.
- Adopt universal and unimpeded design principles in pedestrian infrastructure. Under this strategy, the proposed actions are as follows: preparing a guideline on universal/unimpeded design for pedestrian transportation.
- Current insufficiency of institutional structure of urban transportation. The strategy to overcome this problem is:
 - Make regulations on related institutions in order to prevent conflicts between authority, responsibility and differences between current policies. Under this strategy, the following proposed actions are of importance to the theme of this thesis: constituting a government department for urban transport, preparing a National Urban Transportation Strategy
- Lack of legislations for urban transportation planning and approaches. The following strategies are proposed to overcome this problem:
 - Constitute a legal framework of urban transportation planning and management; preparing Urban Transportation Act and By-Laws.

- In the context of by-laws, make it obligatory for local governments to make urban transportation planning;
- Constitute a committee to prepare the Urban Transportation Act
- Constitute national framework policy documents to guide principles and approaches in urban transportation planning; prepare a binding policy document (White Paper) for local governments; prepare guidance papers;
- Problems related to the allocation of national budget to finance urban transportation investments. The following action areas are determined:
 - Formalizing the criteria of allocation of national budget; defining finance allocation criteria which prioritize sustainability, energy efficiency, environmental aims; formulating cost of investments and operations to estimate how much money will be allocated to which project and for which priorities.
- Ineffective use of current urban transportation systems. To overcome this problem, action areas are as follows:
 - Developing transportation management models, constituting transportation database; fixing problems in transportation infrastructure; determining investments and controlling urban transportation applications; making regulations on routes that are high dense; rearranging insufficient road network.
 - Efficient use of current urban transportation infrastructure and application of travel demand management principles in order to restrict private car use; restrictions on car use in city centers; improving speed, comfort, integration and service levels of

public transportation; decreasing total travel demand by technological improvements.

5.2.3.2 Transportation Forum, Ministry of Transportation, 2009

Transportation forum is described as a continuous platform that formulates the vision, policies, strategies and aims of Ministry of Transportation.

The final outcome of the Forum contains primary strategies for the transport sector. Those related to urban transportation are as follows:

- Constitution of Transportation Institution and Traffic Control Centers, and obligation of preparing transportation master plans for cities
- Transportation plans should be integrated with urban development plans and should provide accessibility for differently able people
- Compatibility of urban transportation systems to EU standards
- Constitution of transportation planning and design standards for disabled people
- Use of energy efficient, environmental friendly natural gas- hybrid vehicles in urban traffic,
- Integration and rehabilitation of sea /water transportation to urban public transportation
- Constitution of car park management system for each city
- Integration of intercity bus stations with urban public transportation
- Declaration of 22 September as 'car free' day
- Choose and reward 'Sustainable Transportation Project' in cities
- Issuance of railway law compatible to European Union and the World.

5.3 Assessment of Documents in Turkey in Terms of Their Content and Emphasis on Sustainable Urban Transportation

In this section, the checklist questions are answered for the Turkey case. These questions are listed below and an assessment is provided under each question. These assessments are summarized in Table 5.1 in which signs show the criteria that applies to Turkey. The analysis is made separately for the country's policies papers, laws and acts, guidance papers, and finally nation-wide studies.

1. Is there a sustainable urban transportation aim explicitly stated?

In the Ninth National Development Plan the first article related to sustainable urban transportation is to constitute a comprehensive national urban transportation strategy that is sustainable and consistent with energy, environment, economics, housing and land use policies. In addition, in Transportation Forum, among the final decisions use of energy efficient, environmental friendly natural gas- hybrid vehicles in urban traffic and integration and rehabilitation of sea /water transportation to urban public transportation are relevant to this issue. The Climate Change Action Plan also sets an explicit goal to restructure the urban transport system into a more sustainable one. That is why a (+) is put for this criterion for policy documents as well as studies (the Transportation Forum) in Turkey case.

2. Is there an energy efficiency policy?

In Climate Change Action Plan Report, one of the actions is to improve energy efficiency in private and public transportation. In addition to this, decreasing unit fuel consumption of motor vehicles is one of the main articles of Energy Efficiency Strategy Paper for Turkey and the By-law on Energy Efficiency in Transportation. The same intended article is also stated in Transportation Forum and Urbanization Congress as well. Therefore a (+) is put for this criterion for policy papers and acts.

3. Is there an environment and air quality policy?

For the policy papers in Turkey, a (+) is put for this criterion because of the Climate Change Action Plan's proposals to reduce CO₂ emissions of new private vehicles, with a view to reduce emission growth rate caused by private car use in urban transportation and its proposals to increase the use of alternative fuels and clean vehicle until 2016. This is not considered to be reflected in acts and legislations however; because the act regarding energy efficiency in transport is really about rationalizing energy consumption and not about reducing emissions although that may be a by-product of the act.

4. Is there a climate change mitigation policy related to urban transportation?

In Climate Change Action Plan Report there is a goal to restrict emission growth rate caused by private car use in urban transportation. The whole document is about mitigation with climate change; and therefore a (+) is put for this criterion for policy documents.

5. Is there a CO₂ reduction (air pollution) policy?

In Climate Change Action Plan Report one of the goals is to restrict emission growth rate caused by private car use in urban transportation. That is why a (+) is put for this criterion.

6. Is there a hydrocarbon and NO_x emissions reduction policy?

In consideration of the goal that is to restrict emission growth rates caused by private car use in urban transportation in Climate Change Action Plan Report, a (+) is put for the criterion.

7. Is there clean (alternative) energy and low emission vehicle policy?

One of the goals in Climate Change Action Plan Report is to take precautions that encourage alternative fuels and clean vehicles until 2020. Another action in Urban Development Strategy is to make public transport systems environmentally friendly, referring to the adoption of environmentally friendly

technologies in selection of fuel and vehicle types in public transportation. In addition there is the policy of giving priority to public transportation vehicles that use natural gas in cities that have natural gas distribution network according to Energy Efficiency Strategy Paper for Turkey, as well as the By-law on Energy Efficiency in Transportation. Similar recommendations are included in Urbanization Congress and Transportation Forum. Therefore this criterion is considered to apply to the Turkish case.

8. Is there use of non-renewable materials/energy sources reduction policy?

In Climate Change Action Plan, regulation of legislation of energy efficiency in urban public transportation is in the list of actions. In addition to this, in By-law on Energy Efficiency in Transportation, prioritization of public transportation vehicles that use natural gas in cities that have natural gas distribution network and consideration of fuel consumption in traffic flow are all mentioned as measures to be taken. That is why a (+) is put for this criterion for policy papers and acts..

9. Is there an integrated transport policy?

Diversity and integration in urban transportation modes are to be provided considering the local features and potentials of each city according to the Ninth National Development Plan. In addition to this, prioritization of intermodal transportation systems especially in public transportation vehicle stops (in By-law on Energy Efficiency in Transportation); making legal regulations for making it obligatory for related authorities to make integrated urban transportation planning with all scale plans (including revision plans) that laws define; planning integration between public transportation stations, routes and pedestrian areas (in Urbanization Congress); and integration of intercity bus stations with urban public transportation (in Transportation Forum) are all stated in the listed policy documents.

10. Is there a railway transportation policy?

This criterion applies to the Turkey case since it is covered in policy documents, acts and studies. The relevant statements from these documents are as follows;

- Evaluation of alternative railway systems and using current railway infrastructure in urban transportation are in the list of actions in Climate Change Action Plan.

- Suburban railway lines are to be integrated with urban transportation according to the Eighth National Development Plan.

- Standards and transfer points on railway systems are to be planned according to the Transport Master Plan Strategy.

- While urban transportation plans are being prepared, railway investments are to be increased in order to encourage public transportation according to the Article 10-5 in By-law on Energy Efficiency in Transportation.

- Article 2.17.1.1 in Urbanization Congress is about planning railway systems on routes that are predicted to have sufficient demand.

- Another recommendation in Urbanization Congress is to use current railway systems effectively as a public transportation mode.

11. Is there a water transport policy?

This issue is covered in policy documents and studies in Turkey:

Using railway and water transport effectively in possible cities is among the list of actions in Climate Change Action Plan for Turkey and an article in Transportation Forum is about the integration and rehabilitation of sea / water transportation for urban public transportation. Improvement of sea transportation in urban transport was also stressed in the Eighth National Development Plan.

12. Is there a policy for consistency of transportation plans and programs with land use and development plans?

Because of the article in the Ninth National Development Plan which is about the integration of land use and transportation planning decisions and preparation of all scales of urban transportation planning, as well as the article of “Legislative arrangements will be made to ensure harmonization and integration between urban transportation plans and city plans” in Urban Development Strategy and the recommendation that refers to the coordination of city plans and sustainable urban transportation plans and also in Transportation Forum, a (+) is put for this criterion for policy papers and studies. While there is a statement in the By-law on Energy Efficiency in Transportation that transport plans should be prepared together with urban plans, this is not considered as a law or legislation that ensures coordination or makes it obligatory to prepare these plans in coordination. Most studies and policy documents state there is no binding legislative framework for local authorities to prepare their transport plans in integration with urban plans. Therefore a (+) is not considered for the acts regarding this criterion.

13. Is there a policy for the consistency of transportation planning with applicable central and local energy conservation programs, goals and objectives?

There are no policies or acts that oblige local governments to prepare energy conservation plans and programmes; so whether their transport plans and projects are consistent with such conservation plans becomes an irrelevant issue for Turkey. It is accepted that this criterion does not apply to Turkey.

14. Are there policies for equal accessibility and mobility?

In consideration of the article in Urbanization Congress which recommended that public transportation is made accessible for disabled people and the article in Climate Change Action Plan that encourages pedestrians to access everywhere in the city a (+) is put into the criteria list for policies and studies.

15. Is there a traffic demand management policy?

Climate Change Action Plan considered the implementation ways of traffic (travel) demand management by decreasing the capacity of car parking areas and roads allocated to private cars , increasing car parking fares in city centers and congestion pricing. In addition to that an article in By-law on Energy Efficiency in Transportation says;

“In order to attain effective, efficient and easy traffic, travel demand management, intermodal transportation systems, traffic management, signaling boards and electronic road guidance systems are proposed to be implemented by related institutions in compliance with national and international standards”

Article 2.25.2 in Urbanization Congress states that;

“The efficient use of current urban transportation infrastructure and application of travel demand management principles in order to restrict private car use”

That is why (+) is put in this criterion in the list.

16. Is there a public transportation (improvement) policy?

“The service quality and technological level of public transport systems will be improved” according to the Urban Development Strategy (Kentges). In addition public transportation systems are to be improved according to the recommendations of the Urbanization Congress; and development and improvement of public transport systems are also suggested as actions in the Climate Change Action Plan. These all refer to this criterion.

17. Is there a bicycle policy?

It appears that in policy documents and studies this issue is considered. Therefore a (+) is put for this criterion. The related articles are;

- Creating bicycle network and bicycle park areas in city (Climate Change Action Plan).

-Pedestrian and bicycle transportation will be prioritized parallel to construction of sustainable urban transportation system in the process of European Union's Alignment with the Acquis (the Ninth National Development Plan).

-Pedestrian and bicycle transportation should be developed and encouraged (Transport Master Plan Strategy).

-To expand pedestrian and bicycle paths, plan decisions will be developed and implemented effectively" (p.26 in Urban Development Strategy).

-Legal arrangements will be made in relation to guides and design criteria to expand pedestrian and bicycle paths (p.26 in Urban Development Strategy).

- To build infrastructure of bicycle transportation in order to encourage their safe use (Urbanization Congress).

18. Is there a walking (pedestrianization) policy?

Policies for this issue have also been proposed in several policy documents and studies. Therefore a (+) is put for this criterion. The related articles are;

- Creating pedestrianized roads and areas; promoting pedestrians to access everywhere by foot (Climate Change Action Plan).

-Pedestrian and bicycle transportation will be prioritized parallel to construction of sustainable urban transportation system in the process of European Union's Alignment with the Acquis (the Ninth National Development Plan).

-Pedestrian and bicycle transportation should be enabled and encouraged (Transport Master Plan Strategy).

-In order to expand pedestrian and bicycle paths, plan decisions will be developed and implemented effectively (p.26 in Urban Development Strategy).

-Legal arrangements will be made in relation to guides and design criteria to expand pedestrian and bicycle paths (p.26 in Urban Development Strategy).

- Creating pedestrianized areas in city centers (Urbanization congress)

19. Is there a traffic congestion policy?

According to Climate Change Action Plan congestion charging should be adopted in city centers. There is also an article in the By-law on Energy Efficiency in Transportation suggesting that municipalities should provide car park areas, design junctions and enlarge roads in order to release congested traffic in city centers; however, as discussed earlier above this is accepted as an unsustainable and outdated approach in traffic congestion mitigation. Urbanization Congress have also strategies for congestion charging in city centers. Therefore, it can be said that there is a traffic congestion policy in policy documents that is compatible with sustainable transport planning principles; but this is lacking in acts and laws.

20. Is there a car (traffic) reduction policy?

This is a policy that appears in many recent policy documents and studies. Therefore a (+) is put to the list. Relevant policy clauses are as follows;

To decrease vehicle density in traffic is proposed in Climate Change Action Plan.

Urbanization Congress proposes to “make public transportation, pedestrian and bicycle transportation viable choices for users and to prevent the tendency of spread, low density, automobile dependent settlements in order to minimize travel made by private car”

There is another article in Urbanization Congress about decreasing car use in cities.

21. Is there a congestion charging policy?

A (+) is put to the criteria checklist according to the Urbanization Congress which states that “with the same time of improving public transportation services, cities should consider the possibility of implementing congestion charging in order to discourage traveling to the city centers by private car”. Congestion charging is also stated in the action areas of Climate Change Action Plan.

22. Is there a park & ride policy?

In the Climate Change Action Plan; creating park & ride areas at public transport transfer points is one of the action areas and Article 2.17.3.4 in Urbanization Congress is about planning park & ride areas at public transportation stations. In addition, according to the By-law on Energy Efficiency in Transportation, municipalities should provide car parking areas in settlement plans and in city entrances of urban transformation projects and improve methods for people to leave their cars to parking areas to use public transportation systems. That is why a (+) is put into the criteria list for the policy documents, acts and studies.

23. Is there a parking (including pricing) policy?

This issue is present in recent policy documents and studies. It is suggested that necessary arrangements will be made to make urban transportation and traffic services effective including the arrangements of parking policy ”(p.27 in Urban Development Strategy), and that parking pricing is made in city centers (Article 2.16.1.3 in Urbanization Congress). It is also proposed in Transportation Forum that car park management system is developed and implemented for each city. In addition to this, decreasing capacity of car parking areas and applying discouraging car park pricing in city centers are also stated in Climate Action Plan of Turkey.

The above analysis is summarized in Table 6 below.

Table 6 List of Criteria

List of Criteria		TURKEY
1. Is there a sustainable urban transportation aim explicitly stated?	Policy Paper(PP)	+
	Guidance Papers, Acts (G-A)	
	Studies(S)	+
2. Is there an energy efficiency policy?	PP	+
	G-A	+
	S	+
3. Is there an environment and air quality policy?	PP	+
	G-A	
	S	
4. Is there climate change policy related to urban transportation?	PP	+
	G-A	
	S	
5. Is there a CO2 reduction (air pollution) policy?	PP	+
	G-A	
	S	
6. Is there a hydrocarbon and NOx emissions reduction policy?	PP	+
	G-A	
	S	
7. Is there clean (alternative) energy and low emission vehicle policy?	PP	+
	G-A	+
	S	+
8. Is there use of non-renewable materials/energy sources reduction policy?	PP	+
	G-A	+
	S	

Table 6 continued

9. Is there an integrated transport policy?	PP	+
	G-A	+
	S	+
10. Is there a railway transportation policy?	PP	+
	G-A	+
	S	+
11. Is there a water transport policy?	PP	+
	G-A	
	S	+
12. Is there a policy for consistency of transportation plans and programs with land use and development plans?	PP	+
	G-A	
	S	+
13. Is there a policy for the consistency of transportation planning with applicable central and local energy conservation programs, goals and objectives?	PP	
	G-A	
	S	
14. Are there policies for equal accessibility and mobility?	PP	+
	G-A	
	S	+
15. Is there a traffic demand management policy?	PP	+
	G-A	+
	S	+
16. Is there a public transportation (improvement) policy?	PP	+
	G-A	
	S	+
17. Is there a bicycle policy?	PP	+
	G-A	
	S	+
18. Is there a walking (pedestrianization) policy?	PP	+
	G-A	
	S	+

Table 6 continued

19. Is there a traffic congestion policy?	PP	+
	G-A	
	S	+
20. Is there a car (traffic)reduction policy?	PP	+
	G-A	
	S	+
21. Is there a congestion charging policy?	PP	+
	G-A	
	S	+
22. Is there a park and ride policy?	PP	+
	G-A	+
	S	+
23. Is there a parking (including pricing) policy?	PP	+
	G-A	
	S	+

When the above table is observed, it can be seen that for the first few criterion, the checklist only applies for the policy documents (except for the criterion related to energy efficiency. In other words, general policy aims, such as sustainable urban transportation, climate change mitigation, CO₂ reduction, air quality improvement, etc., are now present in the country's policy documents, but they have not yet become binding policies by being included in laws, with the exception of the policy of energy efficiency in transportation.

Most of the other, less general measures or actions (improvement of public transport, bicycle, walking as well as parking policies etc.) appear to be covered in policy documents, acts and studies. It should be noted that while the table implies most of these measures for sustainable transport are ensured by laws in Turkey, in fact this is misleading. There is only the By-Law on Energy Efficiency in Transportation that refers to these measures and

actions. Therefore majority of the criteria on the list appear to apply to Turkey in terms of laws and legislation. However, this is not the case. In fact, having these measures in the By-Law on Energy Efficiency in Transportation does not ensure their implementation because this is not a legislation that directly assigns responsibilities and duties to local governments. It is the Greater Municipality Law and the Municipality Law that assigns duties to local authorities and it is a major deficiency in the legal system in Turkey that duties to implement sustainable transportation are not included in these municipality laws and therefore not defined among the main duties and responsibilities of local governments.

The table below shows the acts of Turkey on sustainable urban transportation. The table clearly illustrates that with the exception of the By-law on Energy Efficiency in Transportation, laws and by-laws in Turkey contain no policies, strategies or measures for sustainable urban transportation.

Table 7 Checklist for Laws of Turkey

Criteria/ Checklist	3194 Developme nt Law	By-Law on Plan Making Principl es	5216 Greater Municipali ty Law	5393 Municipali ty Law	By-law on Energy Efficiency in Transportati on
1. Is there a sustainable urban transportation aim explicitly stated?					
2. Is there an energy efficiency policy?					+
3. Is there an environment and air quality policy?					
4. Is there climate change policy related to urban transportation?					
5. Is there a CO2 reduction (air pollution) policy?					
6. Is there a hydrocarbon and NOx emissions reduction policy?					
7. Is there clean (alternative) energy and low emission vehicle policy?					+
8. Is there use of non-renewable materials/energy sources reduction pol?					+

9. Is there an integrated transport policy?					+
10. Is there a railway transportation policy?					+
11. Is there a water transport policy?					
12. Is there a policy for consistency of transportation plans and programs with land use and development plans?					+
13. Is there a policy for the consistency of transportation planning with applicable central and local energy conservation programs, goals and objectives?					
14. Are there policies for equal accessibility and mobility?					
15. Is there a traffic demand management policy?					+
16. Is there a public transportation (improvement) policy?					+

17. Is there a bicycle policy?					+
18. Is there a walking (pedestrianization) policy?					
19. Is there a traffic congestion policy?					+
20. Is there a car (traffic)reduction policy?					+
21. Is there a congestion charging policy?					
22. Is there a park and ride policy?					+
23. Is there a parking (including pricing) policy?					+

Another important result from the Turkish case is the obvious lack of guidance papers that are prepared in other countries by the central governments to guide local authorities and increase their awareness and capacity on sustainable transport planning issues. Examples of such documents have been described in the UK case in the previous parts of this study.

In the following sections, it is intended to combine the above research with the review made on USA and UK policy and legislation systems. A comparative analysis is made looking separately into first policy documents, secondly guidance papers and acts, and thirdly nation-wide studies.

5.4 Comparison of USA, UK and Turkey in terms of policy and legislation documents: Strengths and weaknesses of the Turkish system

In order to compare the Turkish policy and legislations with USA and UK systems, in terms of sustainable transport policies and planning, the review made in Chapter 3 is combined with the above analysis on Turkey. First policy documents are compared; secondly acts, thirdly guidance documents and finally studies are compared across the three countries.

The comparison of policy documents is shown in Table 8.

Table 8 A summary of the analysis of policy papers in comparison with Turkey, US and UK

Policy Paper	USA	UK	TURKEY
1. Is there a sustainable urban transportation aim explicitly stated?		+	+
2. Is there an energy efficiency policy?			+
3. Is there an environment and air quality policy?		+	+
4. Is there climate change policy related to urban transportation?	+	+	+
5. Is there a CO2 reduction (air pollution) policy?	+	+	+
6. Is there a hydrocarbon and NOx emissions reduction policy?	+		+
7. Is there clean (alternative) energy and low emission vehicle policy?		+	+
8. Is there use of non-renewable materials/energy sources reduction policy?		+	+
9. Is there an integrated transport policy?		+	+
10. Is there a railway transportation policy?		+	+
11. Is there a water transport policy?			+
12. Is there a policy for consistency of transportation plans and programs with land use and development plans?		+	

Table 8 continued

13. Is there a policy for the consistency of transportation planning with applicable central and local energy conservation programs, goals and objectives?			
14. Are there policies for equal accessibility and mobility?		+	+
15. Is there a traffic demand management policy?		+	+
16. Is there a public transportation (improvement) policy?		+	+
17. Is there a bicycle policy?		+	+
18. Is there a walking (pedestrianization) policy?		+	+
19. Is there a traffic congestion policy?		+	+
20. Is there a car (traffic) reduction policy?		+	+
21. Is there a congestion charging policy?		+	+
22. Is there a park and ride policy?			+
23. Is there a parking (including pricing) policy?		+	+

As it is shown in the above table, policy documents in Turkey have referred to almost all questions in the checklist. It means that policy papers in Turkey are well prepared and have a comprehensive approach on sustainable urban transportation issues. While USA has a few answers to fill the table above, UK has policy papers to guide acts and laws. It will be discussed below that actually USA does not have a nation-wide sustainable urban transportation

policy that is clearly stated. However, it has many acts and legislations as described below.

The comparison of guidance papers, acts and laws is shown in Table 9.

Table 9 A summary of the analysis of guidance papers,acts and laws in comparison with Turkey, USA and UK

Acts	USA	UK	TURKEY
1. Is there a sustainable urban transportation aim explicitly stated?	+	+	
2. Is there an energy efficiency policy?	+		+
3. Is there an environment and air quality policy?	+		
4. Is there climate change policy related to urban transportation?	+		
5. Is there a CO2 reduction (air pollution) policy?	+	+	
6. Is there a hydrocarbon and NOx emissions reduction policy?	+		
7. Is there clean (alternative) energy and low emission vehicle policy?	+		+
8. Is there use of non-renewable materials/energy sources reduction policy?	+		+
9. Is there an integrated transport policy?	+	+	+
10. Is there a railway transportation policy?	+		+
11. Is there a water transport policy?			

Table 9 continued

12. Is there a policy for consistency of transportation plans and programs with land use and development plans?	+	+	+
13. Is there a policy for the consistency of transportation planning with applicable central and local energy conservation programs, goals and objectives?	+		
14. Are there policies for equal accessibility and mobility?	+		
15. Is there a traffic demand management policy?	+		+
16. Is there a public transportation (improvement) policy?	+	+	+
17. Is there a bicycle policy?	+	+	+
18. Is there a walking (pedestrianization) policy?	+	+	
19. Is there a traffic congestion policy?	+	+	+
20. Is there a car (traffic)reduction policy?	+	+	+
21. Is there a congestion charging policy?	+		
22. Is there a park and ride policy?		+	+
23. Is there a parking (including pricing) policy?	+	+	

As it is seen in the above table, USA has a strength regarding acts and laws in the scope of sustainable urban transportation. However, UK is not effective as much as USA and it appears that UK prefers to make use of guidance

papers rather than acts and laws. Nevertheless, as described in the relevant section, the guidance papers in UK are also binding for local governments. It should be noted again that, almost all the checks in Turkey' acts and laws are referred to the By-Law on Energy Efficiency in Transportation (explanations were made in the beginning of this chapter). Lack of acts and laws on sustainable urban transportation in Turkey appears to be one of the reasons of problems about urban transportation.

Unfortunately, Turkey has no guidance papers prepared by central authorities to guide local governments on sustainable urban transportation. Guidance papers have been prepared in USA and UK by central governments to guide local authorities in order to increase their awareness and capacity on specific urban transport actions and to guide how they will be implemented.

The comparison of nation-wide studies is shown in Table 10.

Table 10 A summary of the analysis of studies in comparison with Turkey, US and UK

Studies	USA	UK	TURKEY
1. Is there a sustainable urban transportation aim explicitly stated?		+	+
2. Is there an energy efficiency policy?			+
3. Is there an environment and air quality policy?			
4. Is there climate change policy related to urban transportation?			
5. Is there a CO2 reduction (air pollution) policy?		+	
6. Is there a hydrocarbon and NOx emissions reduction policy?			
7. Is there clean (alternative) energy and low emission vehicle policy?			+
8. Is there use of non-renewable materials/energy sources reduction policy?			
9. Is there an integrated transport policy?		+	+
10. Is there a railway transportation policy?			+
11. Is there a water transport policy?			+
12. Is there a policy for consistency of transportation plans and programs with land use and development plans?			+

Table 10 continued

13. Is there a policy for the consistency of transportation planning with applicable central and local energy conservation programs, goals and objectives?			
14. Are there policies for equal accessibility and mobility?			+
15. Is there a traffic demand management policy?			+
16. Is there a public transportation (improvement) policy?		+	+
17. Is there a bicycle policy?	+	+	+
18. Is there a walking (pedestrianization) policy?	+	+	+
19. Is there a traffic congestion policy?			+
20. Is there a car (traffic)reduction policy?			+
21. Is there a congestion charging policy?			+
22. Is there a park and ride policy?		+	+
23. Is there a parking (including pricing) policy?			+

Nation-wide studies in Turkey have drawn attention to sustainable urban transport issues while USA has a few nation-wide studies. Besides, USA has related acts and laws since the 1960s and prepared very detailed acts and laws on sustainable urban transport, clean air, environment and energy relevant to urban transport. UK has also nation-wide studies on public transport, bicycle, walking, parking, CO₂ reduction and integrated transport.

5.5 Main Findings and Discussions

The finding there is a clearly stated national sustainable urban transportation aim and policy is among the most important outcomes of the assessment of Turkey's transportation legal and policy documents. There are many recent policy documents adopted by the central government which clearly state that urban transport should be more sustainable. With a clear vision, attaining a sustainable urban transportation system could be easier provided that local authorities share the vision.

Energy Efficiency Strategy for Turkey and By-law on Energy Efficiency in Transportation by General Directorate of Electrical Power Resources Survey and Development Administration (EIE) are also important policy papers and regulations that touches some important points related to sustainable urban transportation system. These are; encouraging clean energy and low emission vehicles, integrated transportation, consistency of transportation planning with land use and development plans, traffic demand management, car (traffic) reduction, park and ride systems. The By-law on Energy Efficiency in Transportation stands as the only act in Turkey's legal framework that has references to sustainable urban transportation system although deficiencies and conflicts in this act were also pointed out earlier in this chapter. The application of this regulation is out of the scope of this thesis but there have been meetings by the relevant public agencies to address problems in its implementation by local governments. As it has been stated earlier, this by-law does not assign the duty and responsibility of making sustainable transport plans to local authorities and therefore it is not actually binding for local authorities. Although this is a problem, this act can still be considered as a starting point of restructuring and renewal in the legislation system of Turkey with reference to sustainable transport planning principles.

Climate Change Action Plan, which was completed in 2011, proposes restriction of emission growth rate caused by private car use in urban

transportation, reduction of CO₂, hydrocarbon and NO_x emissions. Climate change caused by urban traffic emissions are started to be taken into account in policy papers in Turkey. In order to decrease greenhouse gas emissions caused by urban transportation and especially by use of private cars, policies and strategies will have to be determined and legislative regulations will have to be enacted.

Integrated urban transport, which is encouraged by all developed countries in the world, is not effectively taking place in urban transportation legislation system in Turkey. Proposals about this topic are on national policies and national studies, but not ensured yet by laws.

Railway and water transportation systems are known to be sustainable modes of transport and therefore proposed in many policy documents to be integrated with other public transportation. In our legislation system, By-law on Energy Efficiency in Transportation considers the improvement of railway transportation. On the other hand, while the 3194 Development Law defines all kind of public transportation services and vehicles operating on road, sea, water and railway transportation, there are no certain principles to develop public transportation, encourage its usage, making its more sustainable by using environmentally-friendly modes, or even integrating them into each other through route planning and ticketing systems etc. Perhaps learning from the USA system, it can be stated that restrictions, compulsions and encouragements are required by central government through financial aids on sustainable urban projects in order to attain a sustainable urban transportation system.

Consistency of transportation plans and programs with land use and development plans is an essential principle for running urban transportation systems, controlling city growth and encouraging sustainable developments. In Turkey, this principle is only considered in national level policies and nation-wide studies but not in any act or guidance papers on local governments.

Equal accessibility and mobility are always topics of transportation but is considered only in policy papers in national level. None of these policy papers are binding or compulsory. For social sustainability, accessibility and mobility should be taken into account in laws and guidance papers on local governments, whereas these issues seem to be limited only to national studies.

Travel demand management is a contemporary valid approach for sustainable cities. On the other hand, generally Turkish cities choose vehicle oriented, unsustainable, highway based temporary solutions like grade-separated junctions and road widening projects in city centers. From legal and policy framework, national studies draw attention to traffic demand management. The issue is mentioned in many policy papers. It also exists as a valid action in the By-law on Energy Efficiency in Transportation. However, as mentioned before this legislation is not really binding for local authorities, whose duties and responsibilities are defined by municipality laws. These laws have no reference to travel demand management or traffic reduction. As a result, urban transport projects in cities still seem to be unsustainable automobile-oriented projects. It is clear that travel demand management policies should be implemented in Turkish cities and for this the issue should take place in main transportation laws and policy papers. To achieve this, Turkey has to enact a new 'Urban Transportation Law'.

Public transportation is also an indispensable topic of sustainable urban transportation system. Public transportation policy including improvements will help to solve car based traffic if this topic will be adopted by laws and guidance papers on local authorities as soon as possible. It is well covered by policy papers and studies, but not sufficiently in acts.

Bicycle and pedestrian transportation are also considered in national level policies like National Development Plans, Climate Change Action Plan and studies like Urbanization Congress and Transportation Forum. In order to

increase non-motorized transportation, their planning will have to be made compulsory by laws.

Traffic congestion and car reduction policies are parallel topics that should be carried out together in legal and political level. Because they are not taken into account in main laws they have to be considered in either municipality laws or a comprehensive new “Urban Transportation Law”, a recommendation of this study that is further discussed in the next chapter in conclusions.

Congestion charging policy is applied in London (England) and Stockholm (Sweden) that charge a fee for private automobiles driving into the central area in cities during weekdays as a way to reduce traffic congestion and raise revenues to fund transport improvements. Cities must have a very good quality public transport system before applying this measure; however, in the future certain Turkish cities may explore this option. Perhaps it is early to develop this concept into a law or by-law, but it may be useful to have the applicability of this alternative investigated in further nation-wide studies.

Park & ride policy is stressed in the Climate Change Action Plan and By-law on Energy Efficiency in Transportation. To encourage public transportation systems and discourage private car use, central and local governments in Turkey should adopt this in their plans. But it appears that having this recommendation in policy papers and the mentioned by-law may not be enough. Guidance papers may be useful in increasing local governments' capacity.

Parking (including pricing) policy is included in national policies and studies, but not in laws, by-laws and guidance papers on local authorities. However, parking policies especially in city centers could prevent congestion and decrease private cars in traffic. Hence, this policy has to be either enacted into laws and regulations in Turkey' legal and political documents on sustainable urban transportation, or thoroughly covered with guidance documents for local authorities.

When the comparative tables above are considered, it is seen that policy papers in Turkey are comprehensive and well prepared in comparison with USA and UK. On the other hand, differently from USA and UK, policy papers in Turkey have limited impact on laws and by-laws since the policies for sustainable urban transportation are not really transferred into binding legislations.

Laws related to sustainable urban transportation in Turkey are not sufficient in comparison with USA and UK. Especially USA has well thought, guiding and encouraging laws, while UK has different solutions particularly through guidance papers. In addition to this, UK has had a Road Traffic Reduction Act since 1997. Regarding the legislations, numerous criteria appeared to be present in the Turkish system due to the By-law on Energy Efficiency in Transportation; however, in Turkey there is only this by-law as a legislation that focuses on energy-efficiency, emission-reduction, etc. Furthermore, this by-law has also articles contradicting with sustainability principles as discussed before.

To summarize lack of binding legislations is one of the main weaknesses of the Turkish system in sustainable urban transportation. In addition lack of guidance papers is an important issue since these are used effectively particularly in UK to increase the awareness and capacity of local governments, and also to guide and enforce them towards sustainable urban transport implementations. The strength in Turkey appears to be the high level of awareness for sustainable urban transportation at the central government policymaking level. However, if sustainable urban transport policies are to be implemented, then local governments should be guided and enforced to adopt such policies. It is seen in the USA and UK examples that this can be done through strict legislations or detailed guidance papers for local authorities.

CHAPTER 6

CONCLUSION

6.1 Summary of the research

Urban transportation concept underwent a serious change during the last 40 years. As in all areas, sustainability became a considerable topic in order to maintain an efficient urban transportation system. The policies of urban transportation system are; automobile reduction especially in city centers, increase in use of non motorized transportation modes, energy efficiency, travel demand management, integrated transport, CO₂ reduction, park and ride applications, car parking policy, congestion charging systems, use of vehicles with clean energy and low emission.

The main aim of this thesis is to develop a set of criteria in order to assess whether or not the political and legislative documents of a country supports sustainable urban transportation, and then to apply these criteria to Turkey to assess whether the current policy documents and legislations can ensure that local governments implement policies and projects for more sustainable urban transport systems. The case of Turkey provides an assessment of policy and legislation documents of sustainable urban transport via an analysis of UK and USA. The reason for analyzing policy documents and legislation in the UK and USA is because they are generally seen as important examples in terms of their regulations and adoption of policy and legislative documents regarding sustainable transport. These two countries are often referred to in Turkey's national studies on transport, including the Urbanization Congress, which has also been analyzed in this study. In light of the findings of the analysis of policies and legislation in the UK and USA, an assessment of Turkey is done.

The assessment of policy and legislation documents of sustainable urban transport is summarized below. In addition, main findings are described and policy suggestions and recommendations are provided for further steps. Last, future research is discussed.

Policies and legislations produced by the central (or federal) governments have been the focus of this study. Policies or plan documents of local governments were not investigated during the thesis process. That is because the main aim was to assess whether the general country-wide policy documents and legislations were sufficient to provide guidance to local governments. It was believed that ideally central governments should guide local policy makers, so it was important to see whether at the central government level there was enough awareness, knowledge and commitment to creating a sustainable urban transport system.

The research question of the thesis is; “Are the policy and legislation documents in Turkey sufficient to guide local governments towards creating sustainable urban transport systems?”

Afterwards, policy and legal documents of USA and UK have been analyzed and three main headings have been classified. These are policy documents; guidance papers, acts and laws; and national studies. “A List of Criteria” or a “Checklist” has been constituted via the analysis of USA and UK and this checklist has guided the main approach of analysis of the Turkey case.

6.2 Main Findings

The analysis revealed the following outcomes for political documents and legislation regarding sustainable urban transportation in Turkey with comparison to UK and USA.

- In comparison of Turkey with UK and USA, the analysis showed that national policy documents and national studies included sustainable urban transport aims and policies whereas the main

implementing tools which are acts and laws and guidance papers were not the strengths of the Turkish system. That is because Turkey has no guidance papers and only one legislation that features a sustainable urban transportation goal, the By-Law on Energy Efficiency in Transportation.

- In fact, the analysis resulted in a number of plus (+) checks in the analysis of the criteria regarding the guidance papers, acts and laws in Turkey. Although that seems to indicate a positive image of the legislation system on sustainable urban transportation, all of these checks are due to only one legislation, the By-Law on Energy Efficiency in Transportation. The by-law was regulated for increase in energy efficiency in transportation. This means, the main aim of the By-law is not sustainable urban transportation but only a limited part of what sustainable transport entails. Nevertheless the objective of energy efficiency inevitably results in many articles for creating a more sustainable urban transport.
- On the other hand, it can also be seen that while majority of proposals in By-Law on Energy Efficiency in Transportation are in line with sustainable transport principles, there are few proposals that cannot be considered within the scope of sustainable transport planning. The most striking of these is the article that proposes local governments to enlarge their roads in city centers in order to release congested traffic and to ease vehicle flows. This is proposed as a measure to be implemented in city centers. It is well known in transport planning today that increasing road capacities in city centers creates more traffic and encourages more private car usage and therefore not sustainable. Ring roads are also questioned today since they increase trip lengths and result in more energy use and emissions. On the other hand, all clauses regarding public transport improvement and bicycle networks are in line with sustainable transport principles.

However, the legislation lacks any measures on pedestrian transport and accessibility.

- The By-Law on Energy Efficiency in Transportation is also not binding for local governments. The most significant legislations that are binding for local governments are the Municipality Law and Greater Municipality Law. These give duties and responsibilities to local governments; and they assign the duty of making transport plans. However they have no articles that guide or force local governments to make plans for sustainable urban transportation.
- Municipality Law gives the local authorities responsibility to plan and operate public transportation systems including water, road, and railways. But there are no statements about environmentally friendly, economically efficient and socially equitable transportation approaches. In addition to these, there are no clauses, recommendations, or assigned responsibilities to implement travel demand management, traffic management, energy efficiency measures, car reduction or restriction measures, bicycle and pedestrian projects, traffic congestion mitigation policies, charging policies in crowded central areas, an integrated approach to the planning and operation of public transportation systems, integration of transport plans and operations with environmental goals and land use polices, or projects for more usage of renewable energy by private and public transport vehicles.
- Policies that contained sustainable urban transportation aim, environment and air quality, climate change policy related to urban transportation, CO₂ reduction (air pollution) policy, hydrocarbon and NO_x emissions reduction, water transport policy, equal accessibility and mobility, traffic demand

management, public transportation (improvement) policy, cycling and walking (pedestrianization), congestion charging policy and policies for parking (including pricing) are somehow present in Turkey either in national policies or national studies. In order to be implemented by local authorities, however, they should be adapted to acts and laws to make them compulsory.

- When policy and legal documents on sustainable urban transportation in Turkey is considered closely, Turkish legislation is insufficient for implementation and divided into different legislations that make a reference to transport planning. None of these legislations however clearly defines how urban transport planning should be made in order to create a sustainable transport system. More importantly, none of the existing legislations clearly state that local governments should plan for sustainable urban transport. The By-Law mentioned above is an exception, but it also has deficiencies, such as having no articles on walking as well as having articles that may increase car usage and traffic in city centers. The absence of a general 'Urban Transportation Law' appears as a weakness of the legal system in Turkey.
- Despite the absence of an Urban Transportation Act, majority of the articles of checklist shows that the level of awareness is not low in Turkey as it was expected in the beginning of this study. Especially national policy papers and national studies provide an awareness of the importance of sustainable urban transportation.
- While there are many national policies that were originated by national studies, there is no guidance paper on local governments in Turkey. The absence of guidance papers on local authorities let them to prepare transportation plan and programs with a disintegrated approach and without accountability principle.

- Almost all municipalities plan and operate public transportation systems on account of the Municipality Law. On the other hand, investments encouraging and increasing vehicle flow, traffic flow and discouraging pedestrian and bicycle transportation are still being implemented widely by local governments. This indicates that even though the awareness is high at the national government policy level, this is not easily transferrable to policymaking at the local government level.
- National studies generally organized by Ministries seem to affect the process of preparing national policies in Turkey. But, absence of acts and laws means that there can be a gap in implementation process at the local level and that there are no mechanisms to ensure or control that the local governments implement sustainable urban transport policies.
- Local governments generally have no car parking policies in Turkey. Especially in city centers where car and traffic density are high, local governments have operated parking areas for gaining income to local municipality. On the contrary, increasing car capacity in city centers invites traffic demand in city centers and contradicts with sustainable urban transportation principles. While car parking policies to restrict car usage in city centers are included in national policy documents and nation-wide studies, they are not binding for the local authorities.
- An important outcome of the comparison of USA and UK systems is that in order to transfer the knowledge, awareness and political commitment to sustainable transport from the national (or federal) level to local authorities, USA makes use of legislations that force local governments to make sustainable transport plans if they want to receive funding. This becomes strictly binding for the local authorities. In the UK, too there are legislations; The UK are

government makes widespread usage of guidance papers, which are both binding and help to increase the knowledge, awareness and capacity of local governments. This can clearly change policymaking and planning towards more sustainable urban transport. The USA method of relying on strict legislation that can have an effect on funding and budget of local governments seems to be effective since it clearly defines the projects that local governments can implement if they want to receive funds. The UK method of guidance documents that can raise awareness and facilitate capacity building can also be very effective. Perhaps a combination of these two methods should be considered for Turkey. Currently, there are no strict legislations in Turkey; nor are there any guidance documents or clear by-laws that describe urban transport planning and increase the awareness and planning capacity of local governments.

6.3 Policy Suggestions and Recommendations

When criteria checklist is considered closely, signs of plus (+) or checks show some strengths regarding national policies, but also weaknesses regarding legislation and guidance. A comprehensive framework which defines the urban transportation planning and management process should be established. So, with the starting point of National Urban Transportation Strategy, all policies included in the checklist should be addressed and realized. In addition to this, an 'Urban Transportation Act' should be prepared as soon as possible in order to manage all urban transport activities in one guiding authority. The act should include policies, strategies and measures for: pedestrian oriented (not vehicle oriented) transport systems, restrictions on vehicles and car parking in city centers, integrated public transport, energy and environment sensitivity, traffic (travel) demand management, pedestrian and bicycle transportation integrated with public transportation, park-and-ride facilities, encouragement of alternative fuels and clean vehicles. For this purpose, non motorized transportation, bicycle and

pedestrian transportation should be included in all types of policy and legislation documents and like in UK, bicycle and walking strategy papers should be prepared for local governments as guidance.

It is clear that in Turkey there is a need to change urban transportation planning approach. Sustainable urban transportation that minimizes vehicle use, and creates a pedestrian and transit oriented, and environment friendly systems should be integrated to laws.

In addition to legislation, UK's experience with guidance documents should be examined and transferred to Turkey. Central government should prepare and distribute documents on how to make urban transport plans, what the goal and content of these plans should be, how sustainable urban transport can be attained. In addition, as suggested in some nationwide studies, it may help if central government launches a system where sustainable urban transportation projects are awarded every year. By this way, central government can encourage, guide and control local authorities.

Each local government should have a car parking policy in their city and car parking restrictions should be adopted. Either through by-laws or with guidance documents, car parking policies should be made more widespread in cities. In addition, park & ride systems should be integrated with public transportation through railway lanes and bus routes.

Urban transportation plans should be prepared in accordance with urban development plans. This is not sufficiently ensured by national policy papers and studies; it should be made compulsory by acts and laws. Moreover, the process should be oriented by guidance papers on local governments in order to realize correct investment plans on all issues in urban transport.

Congestion charging is a new application provided by local authorities in order to decrease car traffic density in city centers by paying for car entrance. Cities must have a very good quality public transport system before applying congestion charging measure; however, in the future certain Turkish cities

may explore this option. Perhaps it is early to develop this concept into a law or by-law, but it may be useful to have the applicability of this alternative investigated in further nation-wide studies.

In summary, the solution for attaining sustainable urban transportation in Turkey can be made through following two methods or a combination of the two: Either all sustainable transport approaches and investments should be made compulsory by acts and laws for local governments; or these approaches should be explained through guidance papers that can help increase awareness, knowledge and capacity of local authorities. As in UK these guidance papers can be binding to a certain extent because local authorities have to conform to these guides and whether or not they conform to them becomes a control mechanism that can be used by the central government as well as citizens.

6.4 Future Research

In this study, policy documents and legislations were examined while the institutional structure was not included within the scope of the thesis. It is obvious that the institutional structure for establishing urban transportation policy, enacting acts and laws, guiding local authorities, managing urban transportation issues, and controlling the implementation process should also be studied for Turkey. Some of the nationwide studies that were analyzed in this thesis suggested that a central government body is established dealing only with policy making and legislations for urban transport. Considering recent changes in ministries in Turkey in 2011, specific studies might be needed to explore whether such a government body should be established under the Ministry of Transport or the Ministry of Environment and Urbanization, or whether a separate agency should be created where the two ministries (or more) are represented and can cooperate. Institutional structure of urban transportation in Turkey needs to be studied in further researches.

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