Appendix-6-1 1st Seminar

Minutes of Meeting

JICA-IMM HISTORICAL PENINSULA TRAFFIC DEMAND MANAGEMENT PROJECT 1ST SEMINAR

Minutes of Meeting

Greetings

The seminar was opened with intrdocution of Manager of Transportation Deparment Dursun Balcıoğlu. After declaring his excitment of being in a seminar that was held in the metro station whom he was the control chief during construction, he gave information about some quantitive characteristics of İstanbul;like its population is more than 13 million , 3 million vehicle operates among it and mobility is 23 million. He also highlighted the importance of Transportation Master Plan prepared with the cooperation of JICA which is accepted in 2011. He said that the new project will also be realized with the support of JICA and added that this is the first seminar of this project.He ended his speech by thanking to the each supporting departments by counting their names.

From the Japanese side, Mr. Kawahara, made the the other introduction of the seminar. During his speech he emphasised on the studies of the JICA in İstanbul in timeline and explained the commencement process of the JICA-IMM Cooparation at Historical peninsula by giving dates. He also gave background information of the JICA members who were participating to the seminar as speakers.

Fatih District and Problems in the District related to the Transportation

The first presentation of the seminar was made by the representative of the Fatih Municipality, Azad Yalçın. He began with history of Fatih to indicate historical characteristics of area examiming the impact on current structure today. He gave some examples of the recent implementations of Fatih Municipality like circulation management and pedestrianization. At the end of the presentation one of the participants asked whether they have a measurement like survey to assess the impact of these implementations and he answered that the business owners are very pleased during face-to-face interviews.He said that these measures both increased the commerical capacity of pedestrianized roads and reduced the traffic congestion.

Traffic Demand Management Project Group: Traffic Demand Management Measures

Serap Yazıcı, from Istabul Metropolitan Municipality Transportation Planning Department, throughout her presentation indicated the current congestion locations, reasons and their solutions among the TDM measures evaulating their applicability to Istanbul. While doing that she also used comparisons with other cities of the world. For the transportation demand management she counted three main titles; efficient vehicle use, mobilizing the demand, modal shift, and compressing the demand and she clarified these topics by saying what is really aimed. Efficient logistic activities, share car, high congestion vehicle lanes, traffic information systems, pricing congestion, flex work and school hours, pedestrainization, bicycle usage, park and ride, public transportation usage, remote access, carpark management and road pricing were the some measures ahe explained. She pointed out some important issues about applicability of these methods to Istanbul considering financial cost and level of easiness to execute. Aside the measures that are considered to be implemented to whole Istanbul, two points were related to the Hıstorical Peninsula; regional pricing policy and Traffic cell system. She ended her prsentation by indicating the objectives for transportation management of the area along with the criteria put by UNESCO.

Traffic Demand Management Project Group: Social Experiment of the Smart Parking System

The last presentation of the first part had done by Neriman Şahin, from Transportation Planning Department of IMM. She presented the administrative framework, the process and the content of the Historical Peninsula Traffic Demand Management Project. Firstly she put the incentives and then she continued with the details of the project.

Questions and Answers

The first question was asked by Mr. Balcıoğlu (the Head of Department), about the definition of social experiment. He said that firstly he thought social experiment is related to social surveys but then he realized that it refers most likely to trial processes of the projects. He also asked to Mrs. Yazıcı about the reliability of the %25 congestion reduce estimation in case of pricing; whether the model that they use considers local parameters and preference of local people too or not. Mrs. Yazıcı said that they are considered since the model was formed according to 90.000 surveys held. Moreover, one of the questions in the survey form was asking whether would you leave your car if the entrance to historical peninsula is paid and %25 said yes. So, they are very pleased to see that their model gives the consistenet result with surveys.

Next question was about private car using. The participant asked how can we decrease the private car using while GDP increases? He mentioned that in Europe, there are 500 people per one car, while in Turkey there are 250, so it is already low. But Mrs. Yazıcı said thet even the numbers of ownership is high, rate of being in the traffic at peak hours must be not that high and underlined that they are aware that they can not prevent people to buy cars but they can make the public transportation more comfortable in order to encourage them to use these modes. Later on, Mrs. Neriman added the importance of updating master plan according to actualities. Mustafa Ilıcalı, gave the example of the New York whre the railway system is really developed.

TEA-COFFEE BREAK

Importance of the Social Experiment and Traffic Demand Management Projects

Dr.Akimasa Fujiwara, from Hiroshima University, focused on two main points throughout his presentation; when and where to use TDM and which TDM measures are compatible with the city at issue, for example Istanbul. First he explained that TDM are needed because it can be hard to enable balanced transportation with infrastructure developments and investments because they cost much more and harder and takes longer to implement. But, to choose which TDM measures to implement is responsibility of public sector in Istanbul. Finally, he focused on significance of participation of public into these processes by supporting with examples from Hiroshima.

Transportation Politics and Analysis by Information Technology

He explained the signal systems. He mentioned that there are three methods used in Japan. We can separate those as one used by Manuel and one used automatically. Traditional one is like loop detector and can distinguish even the cars changing lanes. He gave the examples of the methods that are used with examples.

Role of the Social Experiment in Urban Transportation and Urban Development

He mentioned about the importance of social experiment and the explained the meaning of Social Experiment. In addition to these we gave examples from other countries in which social experiment was implemented. He explained the experiments in terms of objectives and results.

Impression of the Project Group trained in Japan within the scope of Project

He mentioned about his experiences in Japan. He said that he examined three places Tokyo, Kytho and Hiroshima. In Tokyo he examine the railway system. In Kyhto and Hiroshima he examined the social experiments.

Questions & Answers

Mustafa Ilıcalı: You examined 3 signal control basing on the intersections. Is there any model of this basing on the arterials ? Could you please recommend something for Istanbul ?

Shunsuke Kamijo: In Isbak Signal Control System is established. We will also examine that. Scat system is simple and easy. It is also good. However in congested areas it is not so beneficial. In congested areaas Scoot is better to be used. It is more developed. The most developed one Moderato can be recommended to Istanbul and it is the best for the so congested areas.

Mustafa Ilıcalı: Actually, I want to propose you a a research Project conducted by our University.

Shunsuke Kamijo: Thank you.

Eray Sezer : Do you use face to face system or any other system according to the technology? What is the latest situation in Japan?

Akimasa Fujiwara: In Japan we use Camera, GPS survey. Thus, we also both use face to face surveys to see the satisfaction and to see the objectives and for large amounts we use technology such as camera. As a result this is a combination.

Hakan Arıkan : Characteristic of Japan is different from Turkey. What are the majör factors we will meet according to you ? What are the problems ?

Wakui : If we compare Turkey with Japan , it is nearly the same. However attitude or the charteristic is different. Everybody is behaving according to their advantages. The attitude of “for peace do not use a car” is different in both countries. It is also difficult to develop infrastructure. In long run, we have to develop railway and enforce people to not to use their private car.

Mustafa Ilıcalı: We should take into consideration the realities like the bureaucracy. Modelling will be easier when we see these realities.

Appendix-6-2 2nd Seminar

Minutes of Meeting

ISTANBUL HISTORICAL PENINSULA

TRAFFIC DEMAND MANAGEMENT PROJECT

Minutes of 2nd Seminar

Date **:** 19.03.2012

Time **:** 09.30-13.00

Location **:** Fatih Ali Emiri Efendi Culturel Center-1st Cinema Hall

Opening statements are made by keynote speakers: Mehmet Necip ERTAS (IMM-Manager of Traffic) and Neriman SAHIN as representatives of Istanbul Metropolitan Municipality (IMM); Prof. Dr. Mustafa ILICALI from Bahcesehir University; Koji KOMURA (JICA Turkish Office) as JICA representative.

Seminar Program is indicated below:

1. Evaluation of Social Experiment (Smart Parking System) and Next Steps (Mehmet Cakır)
2. Outline of 2nd Social Experiment (Traffic Cell System in Aksaray Zone) (Serap Cetinkaya)
3. Progress of JICA Project (Katsuhide Nagayama)

1. Social Experiment (Smart Parking System)

Following the keynote speakers, Mehmet CAKIR from IMM Transportation Planning Directorate presented 'Istanbul Historical Peninsula Traffic Demand Management Project' in the context of Evaluation of Social Experiment (Smart Parking System) and Next Steps. He explained about the project definition, social experiment, work schedule and evaluation survey results.

- Herein, Prof. Dr. Mustafa ILICALI asked about the definition of social experiment and he specified that the definition of social experiment is not clear.

According to the evaluation survey results, 16 persons used the shuttle bus services average per day. The purpose of trip was mostly for work issues and access time to the destination point from the parking area was mostly in 1 minute for the illegal parkers. The users choose the parking areas which are close to their destination point and the survey results demonstrate that the information boards had been the most effective way for campaign, however the effect was not satisfactory.

- About the project campaign, Prof. Dr. Mustafa ILICALI pointed out the problems related with public relations and project advertisement. He indicated that the project could not reach to the target group and the users answered the survey questions while they do not have enough knowledge about the Smart Parking System implementations. In addition, he said that the effects of the project on traffic should be analyzed and the gap between the aim and results of the project should be identified clearly.

Mehmet CAKIR defined the Social Experiment and clarified the project aim as: decreasing the through traffic and implementing the Traffic Demand Management measures in Historical Peninsula. He added that the project also aims to decrease the density in Gedikpasa parking lot by directing the users to other parking lots.

- Prof. Dr. Mustafa ILICALI criticized the project according to insufficient 'pricing' implementations. He suggested to organize a meeting in an academic environment and discussing the project including 'communication and pricing' issues. ILICALI declared that organizing this meeting in one month will be important for the next steps.

Neriman SAHIN said that; "in the context of the project, we thought about the pricing issue but then the process primarily focused on Smart Parking System. The project was planned to be introduced by brochures, posters, newspapers and TV news. However, since IMM did not give the permission for publishing and distributing brochures or posters, the project could not be introduced to community sufficiently. Nevertheless, this project will show us the mistakes and potentials and enlighten the path for future studies."

- According to comments of Neriman SAHIN, Prof. Dr. Mustafa ILICALI proposed to create a public spot to support the project and announce it to the citizens. He added that also some promotions can be done on pricing according to the survey results.
- Fatih GUNDOGDU, from ISPARK, asked about the survey results if they were made daily or per hour. He clarified that the results about duration of parking (30-40 min.) and trip purposes (work) is much more different than the expectations.

Serap CETINKAYA specified that the subscribers of Gedikpasa parking lot were omitted during the survey. According to CETINKAYA, the results are not so surprising because the users who will stay in the area in a short time parks illegally, whilst the users who will stay longer prefers to use parking lots.

2. Outline of 2nd Social Experiment (Traffic Cell System in Aksaray Zone)

Serap CETINKAYA presented 'Traffic Cell System' in the context of Outline of 2nd Social Experiment. During the presentation, she described the context of the study, reasons for implementation, preparation works, schedule and selection of the study area. Furthermore, Traffic Improvement Plan, HGS System and logistic movements were clarified.

In addition to the presentation, Neriman SAHIN mentioned about the comprehensive preparation process of the project including literature reviews, examining some case studies from different countries and weekly meetings of the working team.

- Erhan ARK, from HGS Systems Vendeka / PTT specified that the usage of HGS system in the project will make the social experiment process easier and as the contractor firm they have declared to PTT that they will provide the necessary equipment for the project during the experiment (3 months) free of charge.
- Yılmaz OZAN, one of the residents in Fatih District thanked to the project team for their efforts to increase the public wealth and asked about the bicycle paths and recreation areas (parks) if they are considered in the project or not. Serap CETINKAYA clarified that the

municipality has already working for such activities, but they the context of this project is different and those issues are not considered.

- Erhan ARK, from HGS Systems Vendeka / PTT informed about 'Smart City Applications' prepared by Fatih Municipality and he indicated the importance of municipality support for the field surveys (determination of the firms etc.). Serap CETINKAYA stated that there will be field surveys in order to get the most recent data.
- Fatih GUNDOGDU, from ISPARK commended on the project that it seems as an entrance and congestion pricing oriented project. However, Serap CETINKAYA clarified the aim of the project as the project aims only to decrease through traffic in the zone and let the residents to use it.
- Prof. Dr. Mustafa ILICALI said that the selected areas were so dispersed, there should be different alternatives for users and it should be examined if the project is manageable from one center. He also asked about the effects of the system to the traffic out of the zone.
- Serap CETINKAYA clarified that only one area is selected from 5 examined areas and only one area will be studied. Also she added that the experiment process is determined as 3 months to make the project to be understood better and the effects of the project are not known since the implementation has not started, yet.
- Prof. Dr. Mustafa ILICALI stated that the study area should be reconsidered because of its small size. According to ILICALI, this small size will not give correct results, the impact area is quite insufficient and it can simple be observed in micro simulation alone. He also said that the project can be implemented to whole Istanbul with area pricing system.
- Serap CETINKAYA explained that the study area was small because it was a case of social experiment. She said that the sufficiency of the area for Traffic Cell System criteria was also considered. On the other hand, she further explained that with its limited access which can easily to be controlled, the Historical Peninsula is quite convenient for area pricing which IMM is planning for future. She said that they believed the project will be beneficial for the residents and it should be explained to the residents well that the project will increase their life standards.
- Erhan ARK, from HGS Systems Vendeka / PTT stated that he agreed with Prof. Dr. Mustafa ILICALI about the size of the area. He thinks that to get bigger effects, the area should be bigger also. He added that it should be explained to the citizens firstly it is only a social experiment and then it will expand to the whole of Historical Peninsula.
- Rıdvan KAYA from Public Transportation Services Directorate suggested supporting the project with different transportation alternatives. He also told that there is a reaction towards planning in Turkey as other in other countries in the World. Therefore, a serious research should be made on public opinion.

3. ***Progress of JICA Project***

Katsuhide NAGAYAMA (JICA Team Leader) presented 'The Project on Traffic Demand Management of Historical Area in Istanbul, Towards a Sustainable TDM Policy based on Findings from the 1st Social Experiment' in the context of Progress of JICA Project.

NAGAYAMA, discussed about the aims & results of the project including work flow-progress, issues for a sustainable Traffic Demand Management Project and important outputs for the next steps and future projects. He declared that the expected reactions from the community are low and those who have recognized the project are in limited number because of insufficient public relations, incentives, campaigns and insufficient disincentives for illegal parking. Nevertheless, he determined the process as only a social experiment and he said that; "the outputs and the lessons learned are very important for the next steps. Also the public support is important for the continuity of the project."

- Prof. Dr. Mustafa ILICALI thanked to the cooperation between JICA and IMM and the projects produced. He stated that the success of the project will increase according to legal support and tangible implementations. ILICALI notified that the occupancy rates of the parking lots can increase up to 90% in one year and usage of the electronic systems, which are widely used for speed control and red light violation in Turkey, also for roadside parking will support the success of the project.

Following the 3rd presentation and question & answer section a closing speech is made by JICA Team Leader Katsuhide NAGAYAMA.

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Tamaoki WATANABE	JICA Study Team

Appendix-6-3 3rd Seminar

Minutes of Meeting

TRAFFIC DEMAND MANAGEMENT PROJECT IN ISTANBUL HISTORICAL PENINSULA

MINUTES OF WORKSHOP ON TRAFFIC DEMAND MANAGEMENT MEASURES WITH INTELLIGENT TRANSPORTATION SYSTEMS

Date : 23.12.2013
Time : 09:00 – 15:00
Venue : Titanic Hotel, Bayrampaşa

Opening remarks are made by Onursal BAŞ, Deputy Manager of IMM Transportation Planning Directorate as IMM representative and Yoshihiro Kakishita as JICA representative.

The agenda of the seminar is indicated below:

1. Traffic Demand Management Measures (TDM) and Social Experiment (Prof. Akimasa Fujiwara)
2. ITS Application to Traffic Management and Control (Assoc. Prof. Dr. Shunsuke Kamijo)
3. Vehicle-Infrastructure Cooperative System in Japan (Kenjiro Hirose)
4. Traffic Problems in Istanbul and TDM Measures (Nesligül Ünal and Dr. Katsuhide Nagayama)
5. ISBAK (Ersoy Pehlivan)
6. ITS Japan (Hidehiko Akatsuka)
7. Omron Asia Pacific (Seiji Kokumai)
8. Sumitomo Electric Industries (Hajime Sakakibara)
9. Toshiba (Nobuyuki Ozaki)
10. Hitachi (Tatsuya Okubo)
11. Fujitsu (Jungwon Cho)
12. Panasonic (Yuji Tamura)
13. Mitsubishi Heavy Industries (Yusuke Harukawa)

1. Traffic Demand Management Measures (TDM) and Social Experiment

Following the opening remarks presentations began and "Traffic Demand Management Measures (TDM) and Social Experiment" as a first presentation is made by Prof. Akimasa FUJIWARA from JICA team. In the context of the presentation; the importance of TDM, phases of social experiment, importance of public participation in social experiment studies and the results of ITS tram-vehicle communication system application in Hiroshima (2013) is shared with the attendants.

2. ITS Application to Traffic Management and Control

"ITS Application to Traffic Management and Control" is presented by Assoc. Prof. Dr. Shunsuke KAMIJO. The outline of signal control and highway traffic management applications are explained in the context of the presentation.

KAMIJO informed audiences about the signal control systems in highway traffic management such as SCATT, SCOOT and MODERATO which are implemented globally and also the corridor implementation they presented in ITS World Congress (2013).

3. Vehicle-Infrastructure Cooperative System in Japan

"The development process of ITS" in Japan and the benefits of "ITS Spot Service" which is a wide communication tool between roads-vehicles are explained by Kenjiro HIROSE through the presentation named "Vehicle-Infrastructure Cooperative System in Japan".

4. Traffic Problems in Istanbul and TDM Measures

The presentation of "Traffic Problems in Istanbul and TDM Measures" are made by Nesligül UNAL, the chief of Istanbul Transportation Master Plan Team in IMM Transportation Planning Directorate. In the context of the presentation; TDM implementations from Istanbul Transportation Master Plan, implementations in Historical Peninsula, 'Smart Parking System' as the 1st Social Experiment, 'Traffic Cell System' as the 2nd Social Experiment and the 'Urgent Action Plan of Yenikapı Transfer Center Operation' are explained.

JICA team leader Dr. Kahsuhide Nagayama completed the presentation and explained about Area Pricing issue as TDM in Historical Peninsula which is mentioned in Istanbul Transportation Master Plan. He indicated that:

- According the simulation work in Historical Peninsula including the area pricing policy in master plan that the number of vehicles enter/exit and transit pass in the area will decrease.
- Also, Yenikapı Station as one of the biggest stations in the world is important in terms of intermodal transfer and accessibility and the abandoned railway tracks of TCDD would be used as pedestrian way.
- Furthermore, they are working with the IMM Counterparts since 2011, the 2nd social experiment is postponed due to several reasons, they anticipate implementing it after the elections and it is necessary to use monitoring systems and technological developments for area pricing policy.

5. ISBAK

The ITS works which are produced by ISBAK (Istanbul Transportation Communication and Security Technologies Inc.) and implemented with new technologies are shared with the attendants via the presentation made by Ersoy Pehlivan. It is clarified that ISBAK can support Traffic Demand Management Project about the issues of license plate recognition system, D100 corridor management (HOV, lane management, speed management, parking EDS) sightseeing buses (about parking out of the ramparts), public transportation (especially about service buses: their parking during the time they are off, itinerary management) etc.

DISCUSSION

- Mustafa ILICALI asked if there is any evaluation about the Eurasia Project which will be operated in 2015 and affect Yenikapı Project. He specified that the Department of Transportation in Bahçeşehir University is the first program which has the bachelor education for transportation studies. He also indicated the importance of archaeopark and their proposal for tram in Yenikapı Square Project which should be analyzed by IMM and JICA. He felicitated ISBAK regarding to the works they do and emphasized that they should have more contributions for the improvement of traffic. He said that it is necessary to generalize traffic demand management measures and car-pooling can decrease the number of vehicles in traffic.
- Kevser USUL indicated that parking lot occupancy rate should be updated frequently for the Istanbul general in IMM traffic intensity web page.
- Nesligül ÜNAL indicated that they are still updating the information for the 5 parking lots the moment they gain the data. ISPARK has a study to expand this system to all Istanbul.
- NAGAYAMA emphasized the importance of gathering the public and the source together.
- Erhan ARK from Vendeka firm; implementing HGS on highways; indicated that they can give all the necessary support for the traffic management system in Historical Peninsula.
- Ahmet Yavuz GÜNDOĞDU from Traffic Directorate emphasized that pedestrian access in between Aksaray and Yenikapı is not appropriate for the existing underpass will not be useful due to the congestion.
- Nesligül ÜNAL indicated that Yenikapı Operation Plan is to improve pedestrian access in between Marmaray and all other lines.

- Onursal BAŞ added that, the project that plans to take the Aksaray center underground could solve this problem however it is not approved yet.
- Mustafa ILICALI emphasized that simulation studies in Eurasia Tunnel will change the results.
- Neriman ERÜNSAL indicated that in studies done some parameters are determined and in these parameters 6 billion $ benefit is calculated. These studies are in update process by including 3rd Bridge and Eurasian Tunnel to these new projects. Besides, master plan study is a dynamic process so it is important to update the counting and We are paying attention to the benefit it will bring to Istanbul.

6. ITS Japan

In the presentation called "AUS Activities and Role of ITS Japan" by Hidehiko AKATSUKA, configuration of ITS Japan, function and studies conducted in Smart Transportation World Congress (2013) are presented to participants.

7. Omron Asia Pacific

In the presentation called "Omron Social Solutions to Traffic Solutions & Technologies", by Seiji KOKUMAI, systems and sensors developed by the firm within the framework of traffic control systems are presented to the participants. Besides Kakomai inform about the system developed for the heavy good vehicles.

8. Sumitomo Electric Industry

In the presentation "ITS Technologies" by Hajime SAKAKIBARA, ITS main technologies of their own firm and its use within the framework of traffic demand management, traffic control, data collection and their studies in traffic control system are presented to participants.

9. Toshiba

In the presentation "Integrated Transportation Solutions" by Nobuyuki OZAKI, highway solutions, urban traffic solutions, energy solutions related to transportations are presented to participants.

10. Hitachi

In the presentation "Smart Mobility Platform based on Probe Processing Technology" Tatsuya Okubo give general information about road transportation, management solution, smart mobility platform, improving environment friend city life and presented his own recommendations to the participants.

11. Fujitsu

In the presentation called Transport Oriented Real-time / Big Data Management and Analytic Jungwon CHO present to the participants that they can have contribution with the Urban Traffic Management service and decreasing traffic congestion in Istanbul-Historical Peninsula, emergency case support and supporting green area.

12. Panasonic

In the presentation called "Logistic support system using GPS-DSRC O.B.U.", Yuji Tamura presented ITS spot service, logistic support system with the Japan and Brazil examples.

13. Mitsubishi

In the presentation called "Electronic Road Pricing (ERP) System Experience in Singapore and Proposal for Istanbul " , Yusuke Harukawa presented configuration and technology of ERP system in Singapore and his recommendations for Istanbul area.

- No questions are asked after these presentations. Closing remarks are made by JICA Team Leader Katsuhide NAGAYAMA and Transportation Planning Vice Manager Onursal Baş.

Content Agreed by:

Mr. Onursal BAŞ	**Dr. Katsuhide NAGAYAMA**
Deputy Manager of IMM Transportation Planning Directorate	Team Leader, JICA Study Team

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Mustafa EKLİYAR	ISBAK
Fidan ŞEN	ISBAK
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Hajime SAKAKIBARA	Sumitomo Electric Industries
Nobuyuki OZAKI	Toshiba
Neslihan TEKMEN	HITACHI
Yansun DAI	HITACHI
Gonca İKIZ DONMEZ	HITACHI-EUROPE
Tatsuya OKUBO	HITACHI
Tomoyuki HIRANO	HITACHI
Atsuya TOYAMA	HITACHI
Tsutomu HATASE	FUJITSU
Jungwon CHO	FUJITSU
Şevket HASDEMİR	FUJITSU
Yuji TAMURA	Panasonic
Tomoaki ABE	Panasonic
Yusuke HARUKAWA	Mitsubishi Heavy Industries
Hiroyuki MATSUI	Mitsubishi Heavy Industries
Ata KOMRA	Mitsubishi Heavy Industries
Yoshihiro KAKISHITA	JICA Mission
Akimasa FUJIWARA	JICA Mission
Shunsuke KAMIJO	JICA Mission
kenjiro HIROSE	JICA Mission
Saori FUKUHARA	JICA Mission
Ali BEKİN	JICA Turkey Office
Yumiko HORIWAKI	JICA Turkey Office
Katsuhide NAGATAMA	JICA Project Team
Tamaoki WATANABE	JICA Project Team
Makoto OKAMURA	JICA Project Team
Melike ÖNYILMAZ	JICA Project Team
Meltem DELİBAŞ	JICA Project Team
Ece Işın DOGAN	JICA Project Team

Appendix-7-1 Counterpart Report

1 GENERAL CHARACTERISTICS OF TRANSPORTATION IN ISTANBUL

The latest study done for measuring transportation characteristics in Istanbul is the household survey that was done in 2006-2007 for 90,000 households. Updating of this study has been initiated but the field studies have not been completed yet. By household survey which was done in 90,000 houses, all the neighborhoods of Istanbul have been reached, over 260,000 people have been interviewed and around 36,000 trips have been reported.

1.1 General

Now there are 13,255,685 poulation in Istabul (2010) and population density is 2,455 per square km. This Istanbul Mega City was developed through the expansion of urban areas based on its urban structure that was formed prior to 1965. In this respect, Istanbul now needs to change its urban structure, according to the new image as a mega city in terms of quality and quantity (urban re-structuring as envisioned in Istanbul Master Plan).

The expansion of built-up areas presented in Figure 1.3.8 roughly suggests 3 major directions of urbanization, (1) Towards the west from the old urban center in Eminönü (Historical peninsula) on the European side, (2) Towards the east from Üsküdar & Kadiköy area on the Asian side and (3) Towards the north from the old urban center Beyoğlu.

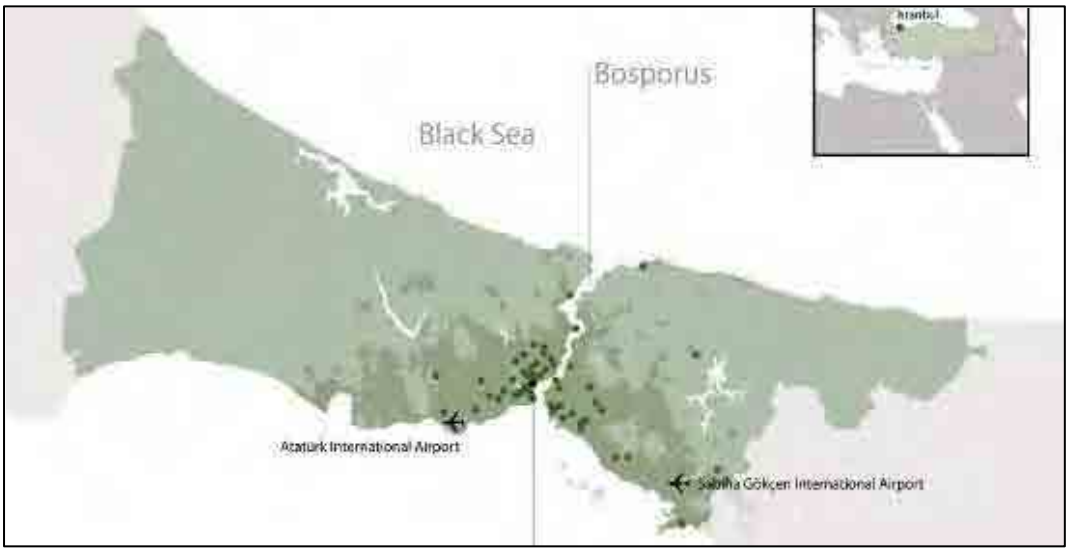

Figure 1 Population Distribution in Istanbul

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Figure 2 popultion Density of Central Area in Istanbul

he existing land use shown in Figure 3 has been shaped as an accumulation of urban and industrial developments carried out in the long history of Istanbul.

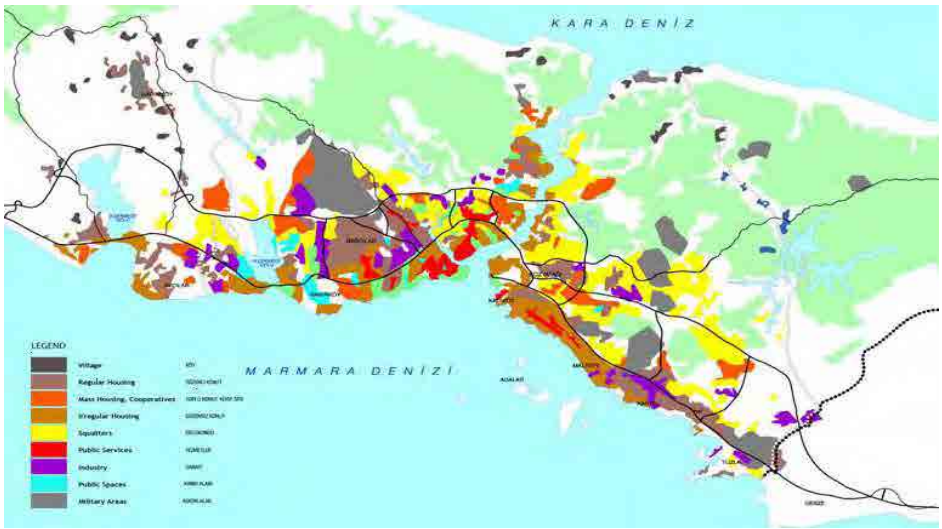


Figure 3 Existing Land Use of Istanbul

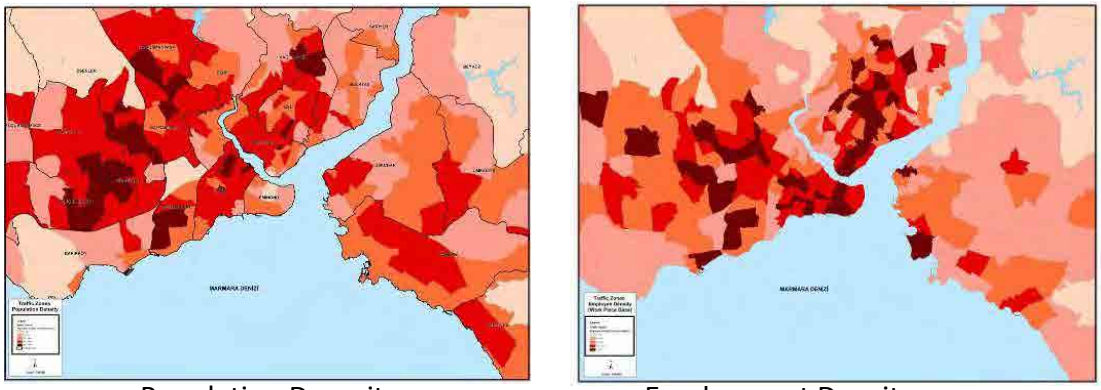
1.1.1 Mixed land use and small-sized land use groups (small-sized development)

The land use of Istanbul is often characterized as “mixed land use” containing different land uses like residential, commercial, office, and others, in one street or even in a building. Related to this characteristic it is said that Istanbul’s urban area is a large accumulation of small scale developments. This may be attributed to the conditions of land for development,

often available only either on hill tops or at slope of valleys. They are usually comparatively smaller than capital capacities of investors and developers.

1.1.2 Concentration and spreading

Istanbul is often described as a “compact city” with very high population density and employment. It has received kudos for effective natural preservation, energy conservation and other virtues. The accumulation of population and employment densities shown in Figure 4 and the existing land use shown in Figure 3 is remarkable in the central parts of Istanbul: West of Historical peninsula, North of Golden Horn, and East of the Bosporus Strait. However the congested areas have already reached saturation levels and are plagued with environmental deterioration and traffic congestion which started hindering the healthy and functional urban living and activities of Istanbul. In contrast to the concentration trend in the central parts, prominent situation in the peripheral areas of Istanbul is the outspreading/sprawls of housing and urban areas represented by squatters (overnight settlements) as shown in Figure 3. In this context, the great task of Istanbul is to tackle these urban problems. The IMM Master Plan attempts to provide solutions to these two major problems simultaneously through the combination of regenerating the central built-up areas and the development of new urban cluster in the city’s peripheries.



Population Desnsity Employment Density

Figure 4 Population and Employment Density by Zone, 2005

1.2 Transportation Characteristics Obtained by Household Survey Results

In Table 6, main trip information achieved as the result of surveys is shown. Gross mobility rate obtained by surveys is 1.74 for all trips. This means that 21 million trips per day are done in Istanbul. If pedestrian trips are excluded, mobility rate becomes 0.88.

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Table 1 Total Number of Trips and Mobility Rates

	Classification		Trips-Rate
Population	All		12,009,007
	6 years and over		11,049,473
Number of Trips	All trips		20,924,133
	Except pedestrian trips		10,342,771
Mobility Rate (Trips/Population)	Gross	All trips	1.74
		Except pedestrian trips	0.88
	Net	All trips	2.40
Trips/Population 6 years and over	Gross	All trips	1.91
		Except pedestrian trips	0.95

When distribution of trips is examined with regards to the purpose of trips, with the share of 37%, Home-Other trips have the biggest share. With 32%, Home-Work trips come after. Meanwhile when distribution of trips is examined with regards to the modes of trips, pedestrian trips are the most common one with 49%. They are followed by, Service and Bus trips with 32% and private car trips with 15%. While share of railways are around 2%, share of sea transportation is 1%. In Image 7, distributions of trips with regards to their mode and purpose are shown.

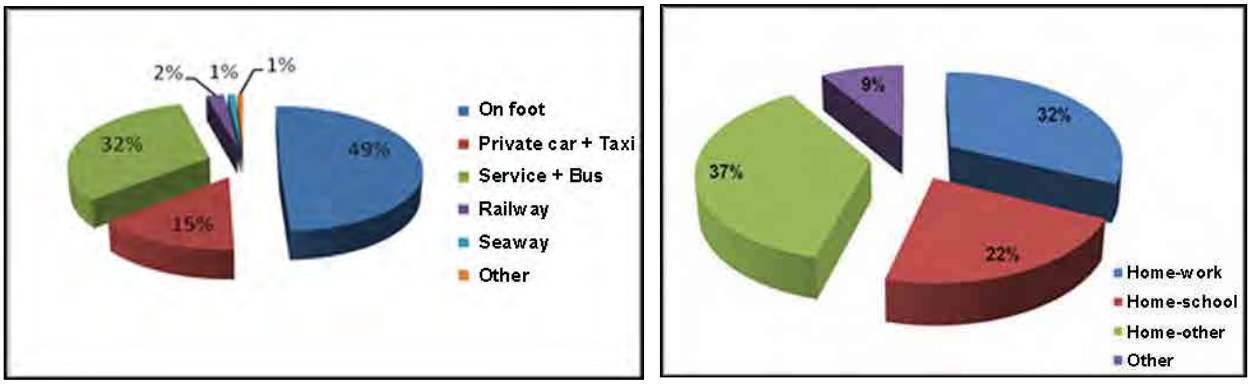

Figure 5 Distribution of trips with regards to their mode and purpose

1.3 Socioeconomic Variables Affecting Transportation

Among the top socioeconomic variables that affect size and type of the transportation mobility there are; population, employment, number of students, income and car ownership. These socio-economic variables are achieved as the result of survey researches and literature reviews done on existing situation. Most of these variables are prepared by Turkish Statistical Institute.

Population

In 2006, when the household surveys was held, population of Istanbul was 11.6 million and in 2009 it was declared as around 12.9 million. In Image 8, population distribution based on Traffic Analysis Zones can be seen. It has been realized that population values are high in Güngören, Gaziosmanpaşa, Eyüp districts.

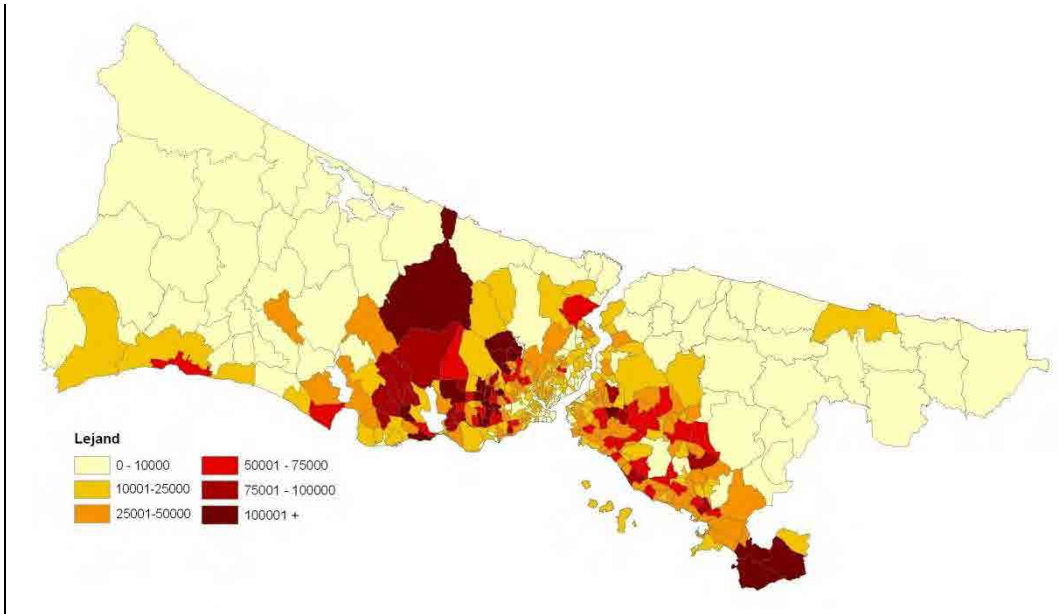

Figure 6 2009 Population Distribution

Employment

According to data of Istanbul Environmental Plan, it is discerned that when distribution of employment is examined on sectorial basis, share of services sector is 60%, share of industry sector is 32% and share of agriculture sector is 8 %.

In Table 7, distribution of employment in Istanbul among the sides is shown. It can be seen that total employment for 2009 is around 3.8 million. 70 % of this employment is at European side, while remaining is at Anatolian side. Because of the fact that while 40 % of the population reside in Anatolian side, only 30 % of employment is there; heavy business traffic emerges on Bosporus bridges.

Table 2 Distribution of employment over Sides

	2009	%
Anatolian	1.137.215	30
European	2.679.882	70
Total	3.817.097	100

In Image 9, distribution of employment based on Traffic Analysis Zones for 2009 is displayed. It can be also noticed by the image that employment is denser in European side.

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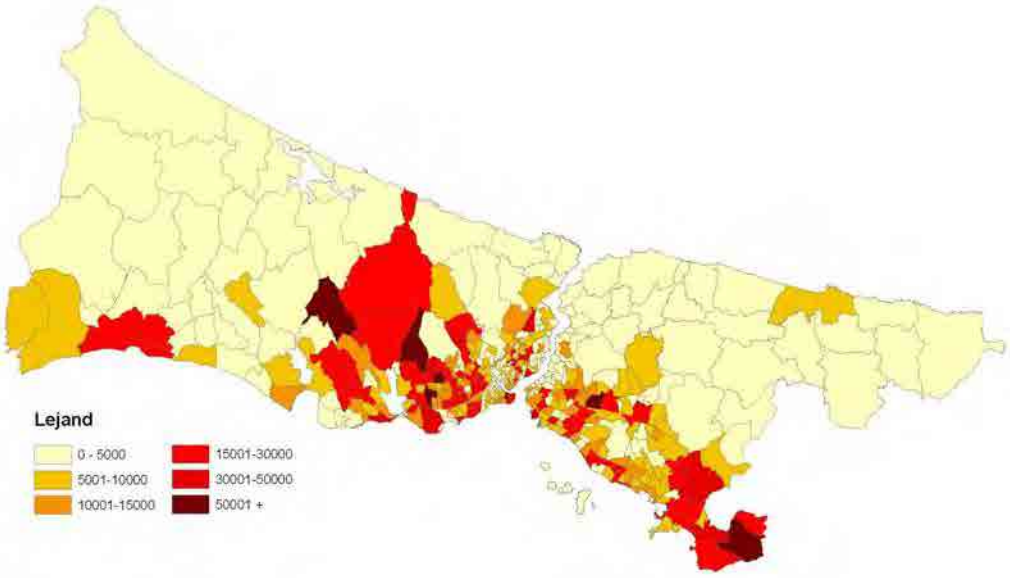

Figure 7 2009 Population Distribution

Car ownership

When it's compared with western cities, car ownership (number of private cars per 1000 people) is considerably lower in Istanbul. While car ownership is around 350-400 cars in European cities, for 2009 it was 137 in Istanbul. According to the data of Turkish Statistical Institute, in Istanbul number of cars on December 2009 was 1,775,335.

During formation of distribution of car ownership in Istanbul, household surveys held in 2006 have been used. Also for income distribution, household survey data had been used.

Number of Students

By using the data taken from Provincial National Education Directorate and OSYM (Student Selection and Placement Center), number of students in Istanbul had been calculated. In Table 8, number of students studying at universities and non-university institutions are shown. Due to these data, total number of students is around 2.8 million.

Table 3 Number of Students in Istanbul in 2009

Number of University Students	Number of Non-University Students	Total number of Students
270,862	2,567,841	2,838,703

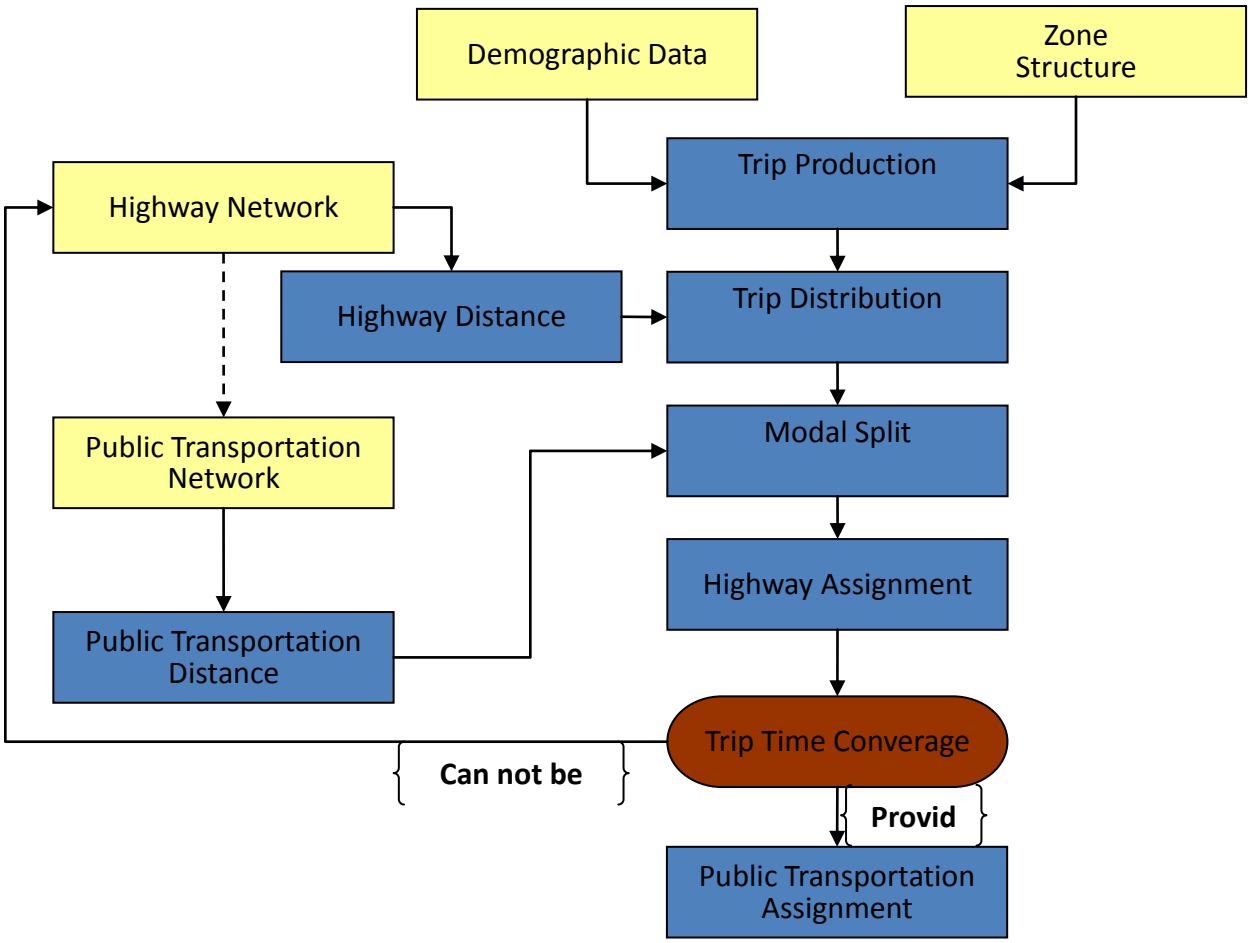

Figure 8 4 Staged Model Process

In Image 11, transportation types according to the trip purposes are indicated. Travelling Targets are determined in 4 groups which are Home-Work (HBW), Home-School (HBS) , Home-Others (HBO) and non-home based others (NHB). International standards are used in the distribution of the trip purposes. However, in some countries different methods are used. In addition to that, trip types are divided into 4 main groups which are pedestrian, private car-taxi, service bus and public transportation.

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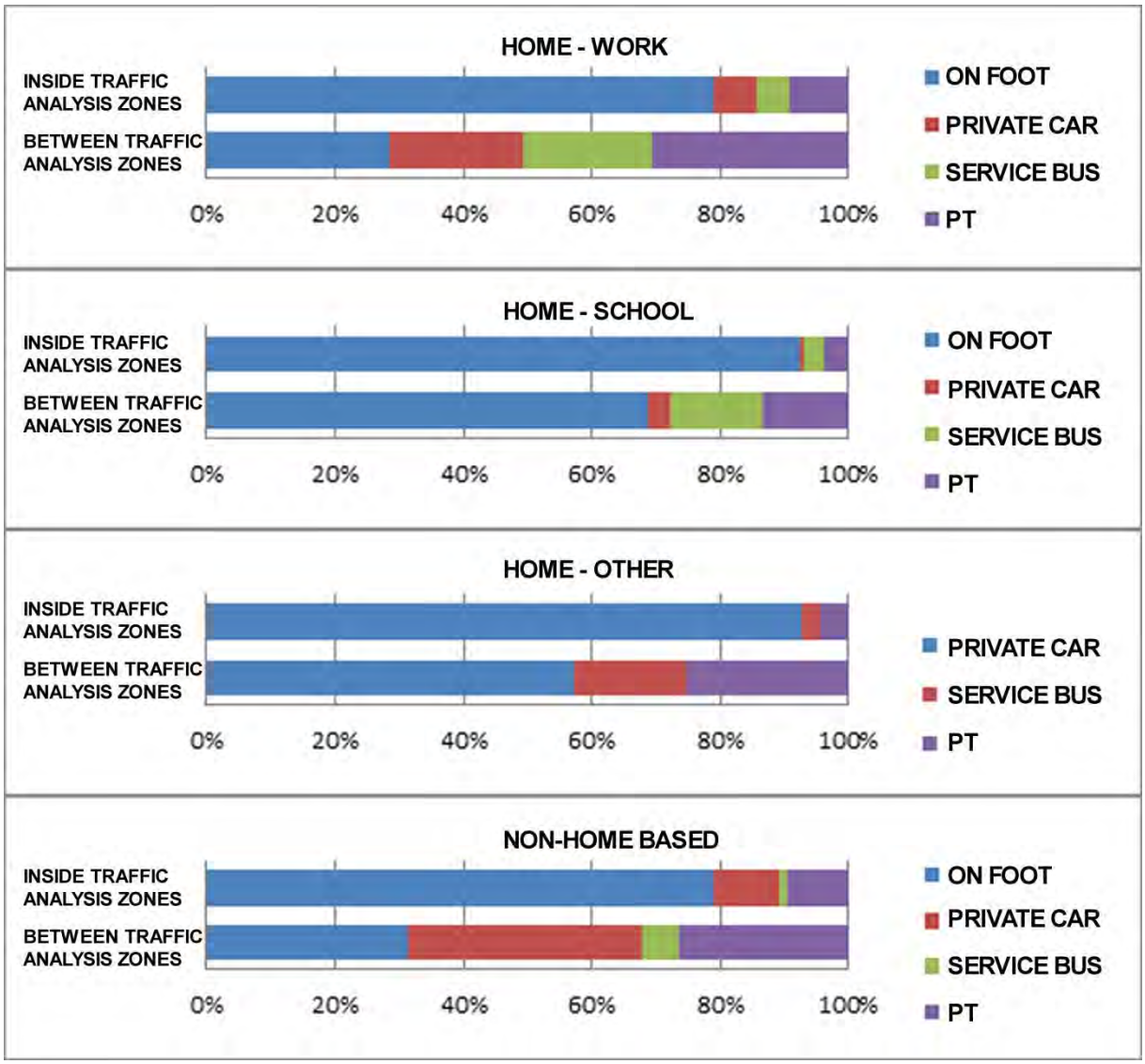

Figure 9 Model Split of Trips according to the purposes for TAZ

In Image 12, volume-capacity percentage results of 2009 network assignment are indicated. In the sections colored green and yellow volume value is below the capacity and volume value going over the capacity in the sections colored respectively orange, red and black. Thickness represents the volume value.

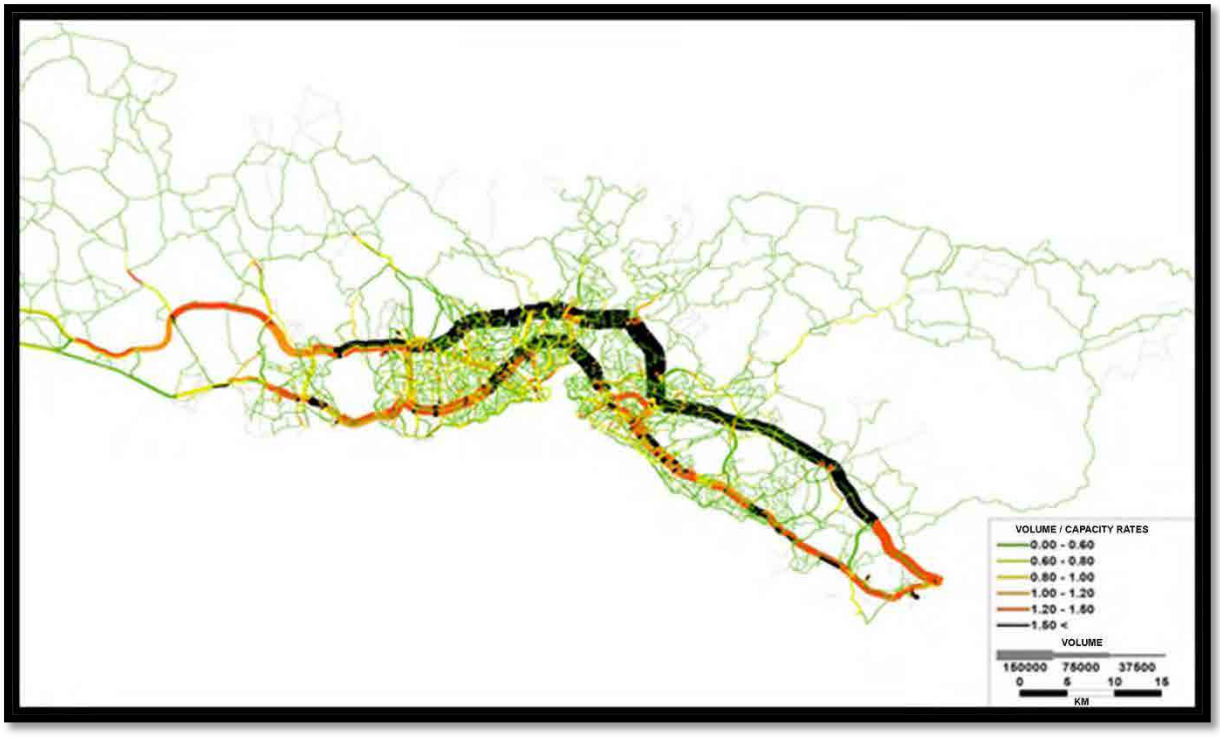

Figure 10 Network Volume Capacity Percentages in the year of 2009

Volume is really fairly high especially in D-100, TEM and connection roads. Besides, in Bosporus bridges and around volume value is 2 times over the capacity.

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2 TRAFFIC DEMAND MANAGEMENT IN ISTANBUL

Under the title of Transportation Demand Management, Traffic demand methods are mentioned in the framework of Transportation Master Plan study which is approved in 2011 and implemented in the city. However, before mentioning these implementations firstly the districts with transportation problem are determined and global demand management implementations are examined.

2.1 Determination of the Districts in Istanbul having traffic congestion

The main steps for the solution of the problems are; determination of the points having traffic congestion and listing the problems causing this congestion. For this reason, while developing the traffic demand management techniques, firstly the points having traffic congestion should be determined. Two different methods are used in determination of the points. One of these is the determination of the points by using the calibrated model within the context of Transportation Master Plan. Second method is adding the districts having the problem of traffic congestion on the map by consulting to the related experts. Below congestion maps are showed which are prepared according to the views of experts and outputs of transportation master plan.

In the assignment (Image 1), results of Transportation Master Plan, Congestion is colored from red to black. Green color is indicating the points without congestion, orange and red colors are indicating the points that reached capacity or 1.75 times of the capacity. Black color is indicating the places 1.75 times over the capacity. In other words, black districts are 2 times over the capacity.

When volume capacity percentages are examined, It is seen that in all the sections of the main arterials like TEM, D-100 and connection roads, the value is over the 1.75. Besides, in Piyalepaşa Boulevard, some sections of Kennedy Street, Vatan Street, Bağdat Street, Libadiye Street, Tarlabaşı Boulevard, Halaskargazi Street, coast road in between Eminönü-Beşiktaş and in so much sections volume value reached the capacity.

Especially, on the Bosphorus Bridge there is a dense traffic flow. The main problem of transportation is the increase in travelling time due to the capacity limit in Bosphorus crossing.

Figure 11 Determination of the congested points as a result of Transportation Master Plan

In image-2, problematic routes, which are determined by experts, can be seen. D-100, TEM and connection roads are not included to these routes. Results are highly similar with the outcomes of Transportation Master Plan. Main problematic routes are Vatan, Millet streets, Basın Express Road, Atatürk Street, Coast road in between Eminönü- Beşiktaş, Barbaros Boulevard and Büyükdere Street, Piyalepaşa Boulevard, Minibüs Street in Anatolian side (Fahrettin Kerim Gökay Street), Alemdağ Street.

Figure 12 Problematic Routes determined by the related Experts

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Traffic congestion can be caused from the inadequate capacity of the sections in other words from not responding to the demand. In addition to that, bottlenecks can also trigger the congestion. In this type of situations, firstly precautions by the signalization system are examined to improve the capacity of the intersections. However, if enough capacity cannot be provided, then it arouses the need for the higher capacity infrastructure investments.

New transportation infrastructure investments are high budget investments. Besides, it will be not easy to implement in a city like Istanbul with settled and narrow streets because it will arouse the need for expropriation. For this type of situations, instead of making new investments it is more beneficial and economic to use Transportation Demand Management methods to create plans related to congestion problem. For this reason, it is important to improve Transportation Demand Management implementations in Historical Peninsula solve traffic problems.

2.2 Transportation Demand Management Methods Used around the World

Transportation Demand Management implementations are implemented all over the world to solve the traffic congestion. Congestion can be hindered by using the existing infrastructure capacity in maximum level. In this respect, solutions should be feasible in terms of directors and acceptable in terms of public.

Optimum usage of Transportation Demand Management Techniques is aimed not for today but for the next generations. In other words, Transportation Demand Management should support sustainable transportation methods.

Historical Peninsula is a qualified district to use Transportation Demand Management, for the reason that in Istanbul, Historical peninsula is the densest place in terms of cultural properties and it is protecting its place as a central place in Istanbul while improving its linear development and reflecting the historical urban structure.

In the Transportation Master Plan Study, demand management implementations are examined one by one and it is aimed to choose the suitable methods that can be used in Historical Peninsula by converting it into an action plan.

Transportation Demand Management examples used around the world is indicated in the Image-3 below. Demand Management implementations can be examined in four main titles.

- Efficient Car Use
- Directing the Demand
- Modal Split
- Repressing the Demand

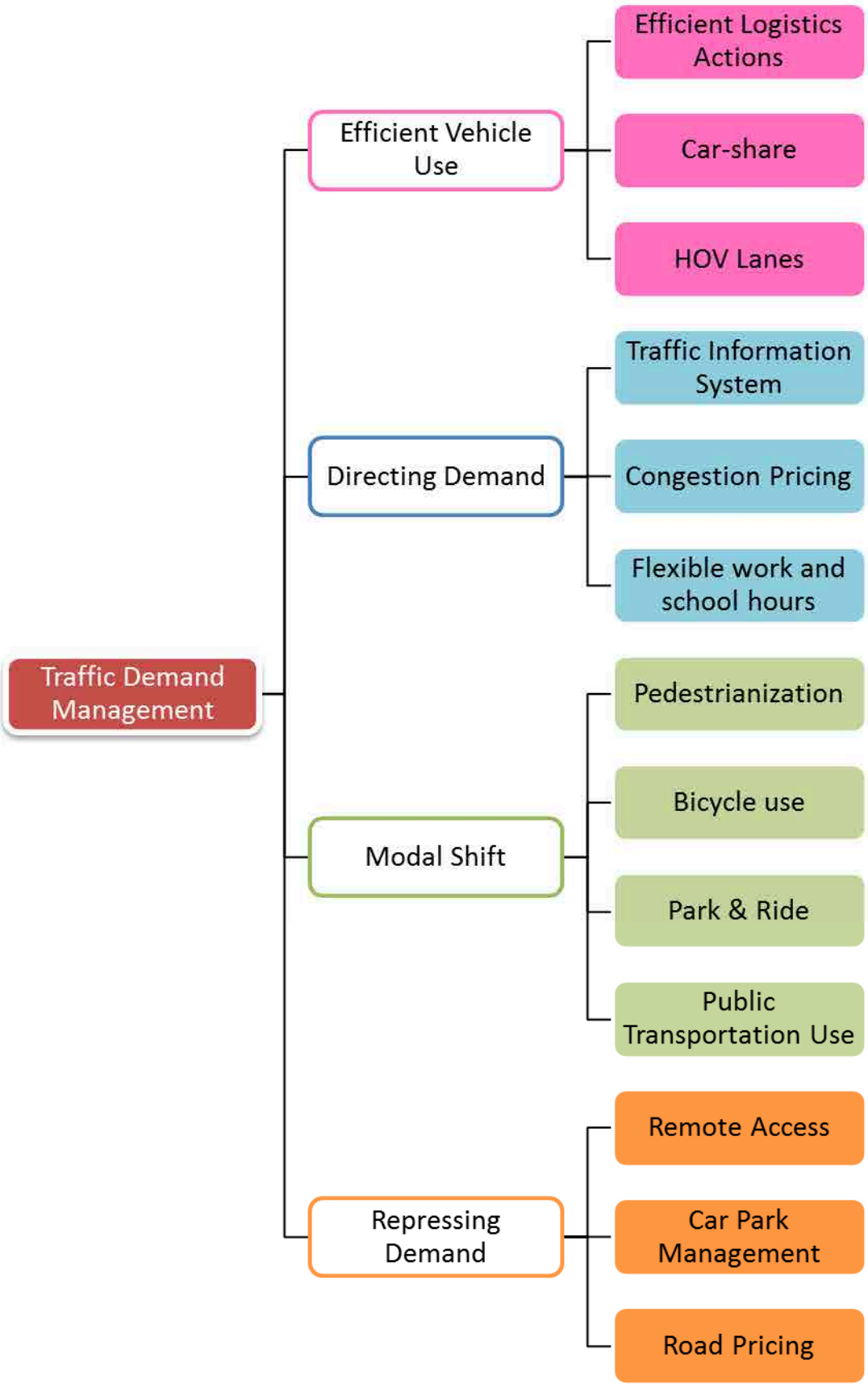

Figure 13 Implemented Transportation Demand Management Methods

2.2.1 Efficient Car Use

The target is to increase the occupancy rate in vehicles carrying passengers and freight. Freight vehicles in traffic are not controlled according to the efficiency standards. One of the biggest handicaps in this type of shipping is that these vehicles are operated by the private sector and the private sector cannot act together in a cooperative delivery system.

Inefficient shipping done especially with small scale vehicles takes up an important amount of space on the in-city roads. Performing cooperative delivery system can provide more efficient shipping. With this implementation, companies in need of similar logistics will be taken as a whole and with adequate vehicle types for every need, negative effects on the traffic will be eliminated.

By increasing the occupancy rate in private cars, the density of traffic will decrease. For this reason, people should be encouraged to shared car use.

Shared car use can be encouraged by forming high occupancy vehicle lanes. Separated speed lane will be only used by the cars with the defined occupancy rate. In the controls done in specific points, cars under this occupancy rate can be hindered to enter this lane and encourage people to shared car use.

This kind of implementations will provide efficiency to the vehicles carrying either passenger or freight, and accordingly, it is aimed to decrease the capacity use of the road.

These implementations have not been used in Istanbul, yet. However, in districts like Historical Peninsula where there are small businesses and strong need for logistics, it is important to avoid this kind of inefficient capacity uses.

2.2.2 Routing the Demand

Smart Transportation Systems, which are used widespread in our days, have an important role in allocating the demand to the right transportation routes. To detect traffic density on main arterials and to divert it to right transportation routes by traffic information system used today is possible in Istanbul, too. However, the system is limited to only D-100, TEM, connection roads and some main arterials for now. With extension of utilization of the system up to subscales, its usage efficiency is going to be increased.

In our day and age, by the simultaneous data receiving navigation systems, calculation of route alternatives which will take shortest time with regards to the traffic density level of the roads is possible. But also, this system is not available for using in Turkey for now.

Another implementation tool is congestion pricing. The aim of congestion pricing is to reduce the traffic volume of highly congested places to considerable levels. Congestion pricing is intended for restricting private car entrance to the areas with traffic jam. Historical Peninsula is the primary area in Istanbul where congestion pricing can be applied. In this area, there is transit traffic in substantial amount. Moreover, due to reasons like parking problem and narrow road structure, the area is not convenient for private car traffic.

Some congestion pricing methods implemented throughout the world can be seen in Table 1. 5 Different methods have been handled in the table. First three of them have been used in Istanbul. First method is paying by card where equipment and operating costs are low. KGS

usage that we've known from the Bosporus Bridges is an example of this method. However, this method is unsuitable for use. It requires to stop during passages and to swipe the card through a machine. Meanwhile, to apply sanction is easy; at that instant plate number can be obtained manually.

Paying by cash has been still utilized at Fatih Sultan Mehmet Bridge. Overall it works similar to paying by card. Only difference is that since an officer needs to be there all the time operation cost is at medium level and there is no equipment cost.

Electronic payment is like OGS. This method has high equipment cost and its operation cost is at medium level. However, it's considerably suitable for use. The driver can pass through counters without any interruption. The device can detect the passing vehicle automatically. Sanctions are also controlled electronically by the same device.

Optical vehicle detection system and GPS system are not among the methods that are in use in Istanbul. In these kinds of methods, equipment and operation cost is pretty high. By optical vehicle detection system, it is possible to detect plate numbers of vehicles. Meanwhile in GPS system, the vehicles can be tracked by GPSs that are put in vehicles. Both of these methods are user-friendly. For these methods, it is needed to establish an additional data base for sanctions.

Table 4 Congestion Pricing Methods and their comparison

Type	Equipment Cost	Operating cost	Unsuitability for use	Sanction
Paying by card	Low	Low	High	Easy (manual)
Paying cash	-	Medium	High	Easy (manual)
Electronic Payment	High	Medium	Low	Easy (Electronic)
Optical vehicle detection	High	High	Low	Medium (database)
GPS	High	High	Low	Difficult (additional system)

Another implementation tool is flexible work and school schedule measure. This method is more likely to be realized with the collaboration of big companies which have large number of employees and especially public institutions. Summer and winter work schedule measures promote these kinds of methods. The working hours of public institutions which are 08:00-17:00 during summers are shifted to 08:00-16:30 in winters. This contributes to reducing morning peak and evening peak traffic congestions which are denser in winters. It can be said that congestion at evening peak journeys, between 18:00-19:00, have been slightly decreased.

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2.2.3 Modal Shift

For some routes, it is possible to choose more convenient modes against congestion by modal shift. The transportation modes which cause least traffic are pedestrian and bicycle transportations. Therefore, rehabilitation of pedestrian roads and encouraging bicycle transportation at routes where conditions are convenient emerge as important.

One of the transportation modes which affect traffic congestion most negatively is private car usage because of its lowest occupancy rate and its inefficiency of capacity usage. Thereby, in order to eliminate the congestion it is recommended to shift private car traffic to public transportation vehicles at the entrances of central areas. To be able to make private car users use public transportation, public transportation needs to be encouraged. In this means, formulation of a public transportation system which has high capacity, is comfortable, safe and secure, becomes more of an issue.

By providing a quality public transportation infrastructure, private car users can be directed to public transportation. In addition, promoting combined modes- which includes private car users who parked their cars at Park & Ride areas outside the urban center and transfer to public transportation- will allay the negative effects on traffic.

Choosing the location of Park & Ride areas is an important factor at this point. Easiness of transfer from parking areas to public transportation vehicles, easiness of access to car park areas and car parks being outside the congested urban centers are the top preference criteria for choosing location.

It's also important to ensure that the distance between car parks and public transportation vehicles at minimum for private car users to transfer. It becomes harder to enable modal shift of people when they have been using their private car for a long distance. In these situations, users tend to complete their journey with their private cars.

In the Image 4, an example related to Park & Ride areas is displayed. A person arrives to the destination point in 60 minutes by private car, but if the person has parked at P1 point, he is at the destination in 30 minutes by using public transportation. Although, when he continues and arrives to P2 point, the 35 minutes of the journey will be taken by private car. If he uses public transportation for the remaining journey, this part of the journey will take 10 minutes. In this case, whole journey takes 45 minutes. In the case where he parked at P1, the time earning would be 30 minutes while in the case he parked at P2, it would be reduced to half and would be 15 minutes. In these circumstances, the number of drivers who give up to park and decide to complete his journey with the private car will be more than other.

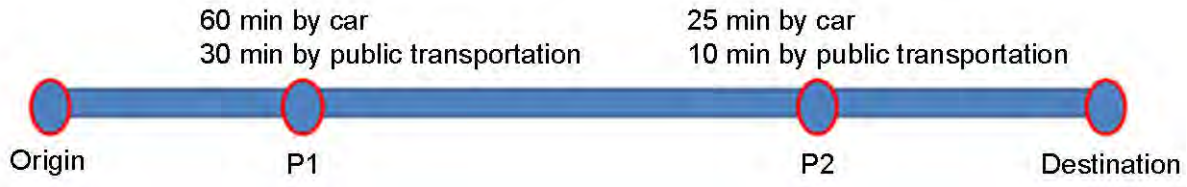

Figure 14 Selection of Locations of Park & Ride areas

Selection of Park & Ride areas has great impact on their usage because of the reasons also indicated above. Therefore, it needs to be studied and planned well.

2.2.4 Repressing Demand

Even repressing demand is not one of the top preferences at first stage for solving the congestion; it's one of the measures to implement in case it is needed.

In this day and age, remote access opportunities are becoming facilitated as information technologies become widespread. Remote access is not used only for business oriented activities but it is also used for education. It is possible to fulfill the educational needs without any necessity of transportation, through some educational programs which can be accessed from anywhere with internet connection.

It is observed that some companies promote these kinds of measures if there is opportunity to work from home. Thus, it becomes possible to minimize the transportation time elapsed on the roads in metropolitans like Istanbul. Moreover, handling the banking services and even eliminating shopping trips via internet becomes widespread.

Another implementation tool is car park management. By car park management, it becomes possible to maintain an optimum balance between car park fees of car parks at congested areas and of the ones outside these areas. The car park demand can be repressed and moved away to outside of the center. By means of this method, it is aimed to raise the prices of car parks at central areas and to enable access to center by public transportation, from cheaper car parks outside.

In other words, it' aimed to limit the access to urban centers by car park pricing policies and to purge the private car traffic to outside of the city.

2.3 Demand Management Measures Implemented and Planned to be Implemented in Transportation Master Plan in Istanbul

Only a very few of demand management measures implemented throughout the world is also implemented in Istanbul. Within the scope of Transportation Master Plan study, some of these measures have been chosen to be adapted to Istanbul. Demand management strategies planned for Istanbul are listed below:

- Car park management
- Transfer center and Park & Ride system
- Bicycle and pedestrian transportation system
- Taxi stand planning and operating system
- Public transportation pricing policies
- Highway and Bosporus crossing pricing policies
- Transportation demand management measures in Historical Peninsula

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2.3.1 Car Park Management

Car park management policies are examined under some sub-titles. These are: Parking area development policies, roadside parking management, sanctions against illegal parking, car park measures for new buildings to be constructed, to get people to adopt parking culture and car park pricing policies.

Parking area development policies;

Number of cars in Istanbul has been increasing rapidly. Absence of car park areas has been an important factor on recent years' traffic problems. Thus, the detection of car park spaces in Istanbul and clear expression of today's and future's car park necessities within the scope of a car park study are needed. By fulfilling the car park necessities, primarily it is aimed to enable existing car parks operate with maximum efficiency and afterwards, if it's regarded as necessary, it's intended to create new parking spaces.

Roadside parking management;

Regulation of roadside parking spaces is not only important for meeting the parking needs, but also it's important for enabling existing traffic continuity. Ignoring the parking necessities, parking should to be prohibited along arterial roads. For the remaining roads, size of the parking space, permitted waiting time, price structure and type of vehicles that are allowed to park, must be decided with regards to variables like road class, land use condition, and traffic jam level.

To use electronic control systems in order to audit duration and situation of roadside parking becomes important.

Sanctions against illegal parking;

In order to prevent illegal parking, warning boards should be clearly distinguishable especially at the no parking areas. Moreover; to use electronic control systems, to ensure that legal sanctions are at deterrent levels and to establish control mechanism to be able to force these sanctions are essential in order to obviate illegal parking.

Car park measures for new buildings to be constructed

Considering the implications of increasing vehicle traffic for car park necessity, to create solution for car park demand that is going to arise with the construction of new buildings should be obligatory by legal regulations.

To get people to adopt parking culture;

Trainings and campaigns are aimed to be more popularized in order parking culture to be accepted by public.

Car park pricing

By means of car park pricing policies, allocating car park demand from central areas to car parks outside the center is aimed. As the result of promoting the car parks outside the center with pricing policies, the load of the central car parks with limited capacity will be reduced and traffic jam in central roads will be obviated.

2.3.2 Transfer Centers and Park & Ride Systems

Transfer centers and Park & Ride areas have significant distinctions even they seem similar in terms of pedestrian flow density. While Park & Ride areas promote multimodal transport where private car and public transportation are used together; transfer centers are the areas that transfer between modes of public transportation takes place.

Transfer centers are generally concentrated at central areas. Meantime, at Park & Ride areas, the aim is to transfer private car users to public transportation modes. In order to prevent private car users enter to central areas where traffic is jammed, Park & Ride areas are intended to be planned outside the center.

For extending the use of transfer centers, it is crucial to maintain necessary conditions for both private car and public transportation users. Among these conditions there are standards like to keep walking distances as short as possible, to provide easy and comfortable transfer between modes, to form enough size areas to fulfill necessities of transfers.

During determining the required area size for transfer centers, well-estimation of traffic volume comes into prominence. To estimate this volume is achievable by demand estimation models.

2.3.3 1.3.3 Bicycle and Pedestrian Transport System

Encouraging pedestrian and bicycle use is one of the sustainable transportation policies to be able to avoid the negative effects that motor vehicles cause at urban traffic. These transportation modes also contribute to daily exercise and healthy life style of the people.

In order to encourage bicycle use, these are aimed:

- Putting the vertical and horizontal signs to increase bicycle users' safety
- Formation of separated lanes at the spaces split for bicycle and pedestrian use
- To obey the principles of directness, continuity and security for pedestrian and bicycle routes
- Creation of bicycle parking spaces at areas that are close to central functions and public transportation stations
- Formation of bicycle rental areas

2.3.4 Planning and Operating of Taxi stands

By reviewing legal regulations concerning taxi stands, making some changes on taxi operation order is planned. For this purpose, a study named "Taxi Stands Planning and Operation System" has been executed by Istanbul Metropolitan Municipality.

Within the scope of taxi stand planning study, it is targeted to lead all taxis from a single point- by the "Call Center" planned to be formed within the body of Istanbul Metropolitan Municipality. By this way; it is intended to prevent free circulation of taxis at urban centers, squares and main arterial roads with high traffic capacity.

2.3.5 Public Transportation Pricing Policy

In contrast with other world metropolitans, distance–oriented public transportation pricing policies are not implemented in Istanbul. Since Istanbul is a city extending linearly, travel distances are higher than other world metropolitans. In Table 2, Average travel distances in Istanbul and other world metropolitans are displayed. While the longest travel distance is 7 km in Stockholm and Paris, it is around 13 km in Istanbul.

In the Transportation Master Plan, this dissimilarity had been remarked and implementation of distance oriented public transportation policies had been suggested. Especially, Marmaray line, that is planned to be launched in short-term, will provide uninterrupted transportation between Gebze and Halkalı. Also the metrobus line, which is currently operating, is aimed to be operated between Beylikdüzü and Söğütlüçeşme. For these kinds of long routes, distance oriented public transportation policies become more important in order to be able to increase economic efficiency.

Table 5 Travel Distances in Istanbul and World Metropolitans

Cities	GDP per person ($)	Daily GDP per person ($)	Average travel distance (km)
Stockholm	60.008	164	7
London	59.941	164	3
Paris	58.550	160	7
Budapest	18.995	52	5
Istanbul	10.000	27	13

2.3.6 Highway and Bosporus Crossing Pricing

In the Transportation Master Plan, pricing the congestion is suggested to be able to prevent traffic jam on the Bosporus bridges. Within this scope, the purpose is to determine different price fares for different time zones and different vehicle occupancies.

2.3.7 Transportation demand management measure in Historical Peninsula

Historical Peninsula is a valuable place in Istanbul considering its historical, touristic, educational and financial significance and its extraordinary beauties. In Table 3, position of Historical Peninsula in Istanbul is shown. The region comprises the 3% of the population and 7% of the employment.

Table 6 Position of Historical Peninsula Among Istanbul

	2009		
General Characteristics	Istanbul	Historical Peninsula	Share in Istanbul
Population	12.915.158	433.796	3%
Employment	3.726.000	276.809	7%
Number of trips	24.271.995	1.546.247	6%
Area Size (km^2)	5.991	16	0%
Journey/ km^2	4.051	96.640	24

In the Transportation Master Plan, regional pricing policies and traffic cell system are suggested for Historical Peninsula.

Historical Peninsula Regional Pricing Policies:

It is aimed to reduce the private car use while coming to the region and to minimize transit passages by the means of Historical Peninsula regional pricing policies. Within this context, to collect fee at ingress and egress points to reduce the congestion has been examined by using demand estimation model. In Image 5, points to collect fee are shown.

Figure 15 Fee collection Points in Historical Peninsula

At the ingress and egress points, to implement the same pricing policy with the Bosporus bridges has been agreed. In Table 5, for the cases where fee is collected and is not collected, the changes of number of vehicles accessing and egressing and number of vehicles transit passing are shown. In the case that fee is collected, it has been realized that 13% of the vehicles accessing and egressing and 25% of the vehicles transit passing reduce. These results indicate that regional pricing policies, which have been planned, will be successful.

As the result of pricing policies, when transit passages irrelevant to region are reduced by 25%, 14,000 vehicles will be removed from the regional road network. Also, by transfer of 63,000 accessing and egressing vehicles to other transportation modes, daily 77,000 vehicles will happen to be removed from Historical Peninsula in total. In addition, the reduction in amount of emission and reduction in time loss caused by delays are also aimed.

Table 7 Advantages of Pricing Policy in Historical Peninsula

Number of Vehicles	No Pricing	With Pricing	Reduction	Share %
Ingress-Egress	482.922	420.159	62.763	13%
Transit Passage	57.379	43.098	14.282	25%

Traffic Cell System For Historical Peninsula;

Through establishment of traffic cell system, it is intended to divide Historical Peninsula to cells with respect to the factors like land use structure and topography and then to develop decisions on transportation for each cell. In Image 6, an example for cell system is shown. As it can be seen in the example, it is aimed to decide on transportation standards and road typologies for each cell.

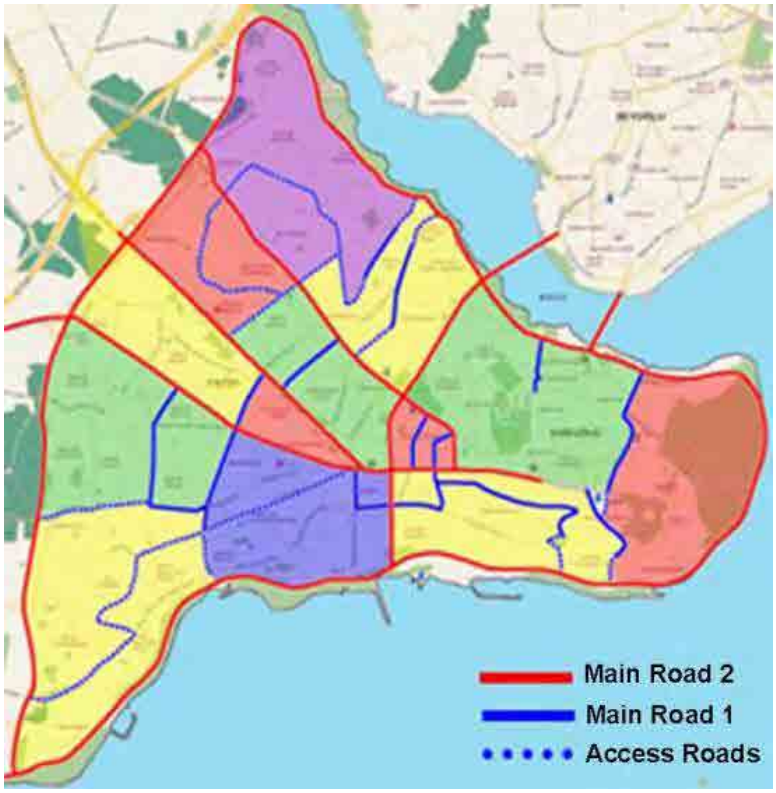

Figure 16 Example of cell system for Historical Peninsula

During the gradation of road network, usage of 5 different categories had been suggested. These categories are:

- Roads closed to vehicle access completely; road network permitted only to pedestrians
- Transit roads; pedestrian, public transportation, public vehicles, freight vehicles which operate in certain hours of day
- First degree access roads; vehicles of residents of the neighborhood, public transportation, public vehicles
- Second degree access roads; all vehicles except freight vehicles
- Main road 1; is consisted of road network free to all transportation vehicles in certain hours of day. Permitted maximum parking duration is 30 minutes on these roads.
- Main road 2; is consisted of road network without any restriction

Elimination of traffic jam problem by formation of a transportation system for Historical Peninsula by identification of traffic cells and road gradation is targeted.

3 TRAFFIC CIRCULATION AND TRAFFIC DEMAND MANAGEMENT PROBLEMS OF HISTORICAL PENINSULA

3.1 Parking Problem

3.1.1 Parallel road side parking problem :

It is an important problem for the residents to park their private cars in the roads whose width is less than 700 cm from one building to the other. It is a fundamental problem in our city that the roads are not available for all the users. If we try to provide 100 cm pavements for handicapped people and hold the vehicle track width as 300 cm considering 12 meter Fire engine with Hydraulic Ladder, we should regard vehicle parking width as 200 cm and for the roads over 700cm wide, we should contemplate vehicle lay-bys.

It is necessary to reject doing pavement implementations in the roads whose width is less than 500 cm and provide pedestrian priority; in addition to these it is important make the arrangements regarding the controlled access system for the vehicles that can be used in case of emergency conditions. In the roads with the width of 500cm from one building to another, it is important to reject doing parking lane that is being demanded from the users. Systems should be designed appropriate for all the users.

Angular and vertical parking can be a solution in the roads with width of 1100 cm from one building to another. Parking need should be evaluated and planned after examining the existing demand. Implementation details can be easily determined by a city guide prepared. However the main target makes us face with the question of road side parking problem. For the targeted condition, it is ambiguous that both roads and indoor system can meet the need of parking demand. However, if indoor parking is the solution, location and the capacity information should be included in the plan.

3.1.2 Inadequacy of Indoor Parking System :

Users encountering the problem of parking are entering the indoor-outdoor parking lots. In time, these lands are included in modern implementations and converted into indoor-outdoor parking lot and parking meter implementation is preferred. The need for the indoor parking lot is met by the existing empty lands. These lands in historical peninsula have high public value. This will be a big problem in our city which is lacking green area. Increasing demand and searching for new parking lots will lead users to public empty areas, streets and centers. To handle this can of problem, in Fatih City Plans revision for the future, maximum vehicle demand and appropriate indoor parking lots according to this vehicle demand should be planned. The main target of planning is underground parking system and using the ground as a green area and allocated to the public. Parking line construction on existing roads should be allocated to the vehicles parking for a short period and aimed to not to hinder traffic circulation. In addition to that, in parking lane designing entrances and exit points of taxi park meter, bus stations and hospitals should be taken into consideration.

3.2 Road Geometry and Standardization Problem

3.2.1 Problems in Roads of Historical Structure :

The most important problems are topography and slope. Historical Peninsula has 90m height and is built up on 7 hills. These hills are covered with historical monuments. Around every historical monument, there are roads and buildings developed appropriate with the slope of the land. At highest point of the hill, around the monument, a city unit (town) is developed in a radio-concentric way. To decrease the slope of the hills, roads are designed with curves. In the roads going down from top until the coast, there are problems in view angle, turning angle problems according to the length of the cars, increase in the consume of the fuel (caused by the slope) and environmental pollution problems. Existing structure is developed according to the human scale. These developments not giving priority to the vehicles are under the pressure of modern world. Development plans should plan roads appropriate to the traffic and pedestrian prioritized roads in order to respond to the needs of the modern world and to protect the historical structure. With the traffic demand management plans appropriate to the development plans, it is undeniable that these kinds of problems will be solved.

3.2.2 Inadequacy of Arrangement for the Handicapped:

The main target in the arrangements of public area should be “Project Addressed for all Users”. When we examine the user profile of the urban users, we can see pregnant women, women with babies, elderly people, handicapped, etc. If handicapped people are not included in the projecting stage, handicapped people will be lead to “straight and flat” roads. This will cause problems both for the security and for the traffic circulation. In Fatih district, traffic congestion caused by a dense pedestrian circulation is very common since the district is accommodating the biggest research hospital in the country. These kind of important hospitals are a big burden in the district. Appropriate solutions should be found (underground access, elevator over pass etc.) without thinking of moving the hospital out of the district as in decentralization projects. The most important thing is design width of the pavements appropriate to the handicapped. Pavements should be designed for both handicapped and not handicapped people that will secure them from the vehicle traffic and let them move at ease. Minimum width in narrow streets needs to be planned as 100cm and handicapped-not handicapped people should be prevented to enter traffic circulation.

3.2.3 Lack of Site Manage

In Historical Peninsula, “defined” public places which are designed appropriate to the development plan should be planned according to the definitions. Site Management can be developed for street, center, around hospital, around shopping mall, around port. “Alternative Traffic Circulation Project” should be offered in the Project done according to the Site Management Plan for the pedestrianized roads. Site Management can be presented as “Temporary Traffic Circulation Project” in the public market and closed areas. All of these should be prepared according to city’s “Life Plan”. What was implied by saying life plan is this: pedestrian circulation oriented region can be designed as region having the characteristics of the boulevard with both dense pedestrian circulation and dense traffic circulation, where pedestrian circulation and traffic circulation have advantages over each other but not replaceable by each other. Sub-category of these categories should be places

as a main condition of land management. To exemplify, “pedestrianized” district dense with pedestrian circulation, market areas for textile products. Development plans should be designed by revising the traffic circulation-parking demands.

3.3 Traffic Integration-Circulation Problem

3.3.1 Rubber-tired systems and Problems of Pedestrian Circulation Integration of Railway Transportation:

As a necessity of the system, rubber-tired transportation is operated by drawing into the right lane. Even some implementations where the right lane is preserved for these vehicles can be seen; generally the system malfunction occurs because of lane-occupying vehicles. However, lane occupation is not only exercised by private cars but also by public transportation vehicles. Public transportation vehicles that decelerate and try to escape from stopovers at the right lane, block the traffic flow and pass to the left lane. Insufficiency of the enforcement on the field and non-sustainability of sanctions cause the raise of illegality. In grand boulevards, Vatan and Millet Streets, these kinds of situations have been increasingly encountered. Determined enforcement and tracking is necessary. The fundamental need of the system is to enable all kinds of stations to discern each other. For instance; if I.E.T.T Ulubatlı Station is developed integrated with Ulubatlı Metro entrance and Exit stations, upcoming I.E.T.T station should be in a position to fulfill metro station capacity and a new station should be built between the other two. Every station brings extra pedestrian loads to the boulevard. If to increase the use of undergrounds and footbridges snot possible, these integration plans must be reviewed.

3.3.2 Absence of Developing Alternative Transportation Systems:

At Historical Peninsula, taxi, bus, tram, minibus, suburban train and metro are used for public transportation. M1 Metro Line operates between Atatürk Airport to Fatih, Suburban Train Line operates between Halkalı to Fatih and T1 Tram Line operates between Bağcılar and Fatih and then also to Kabataş. On the other hand, I.E.T.T serves in a wider scale and carries passengers to Fatih district from Yeşilköy-Bağcılar-Alibeyköy-Şişli-Beşiktaş (which all together create a circular border). Stations like Bayezid, Aksaray, Eminönü are the busiest of the city and they are the most dense regions in terms of pedestrian circulation. These regions are large scale spaces where most of the pedestrians use for transfer to other vehicles. Other stations are used by residents of the district and by citizens who want to use health and social services. Residents of the Fatih district use other alternatives of public transportation rarely. Alternatives as minibus, taxi and dolmuş are preferred most importantly because of their comfort and fastness. Residents of Fatih with middle or high income prefer their private car, minibus, dolmuş and taxis. One of the reasons of this situation is that Fatih is a transportation center and economic public transportation alternatives can be provided. Thereby, it can be realized that alternatives like dolmuş, taxi, minibus are used among the district only for “accessing public transportation stations”. Since there is no bicycle and handicapped battery operated vehicle lanes in the Coast City Istanbul (even on the streets and roads of the Fatih district) unnecessary alternative transports have developed. It could be a life-style that people accessed to public transportation with their bicycles, parked there and at the end of the day took their bicycles

back to home and traffic load inside the district and moreover ingress traffic from nearby districts would be both eliminated.

3.3.3 Problems Caused by Giving up the Appropriate Systems for Historical Structure:

In Historical Peninsula, it wasn't possible to talk about transportation networks that link enclosed areas since there were areas becoming valleys between the hills, the hills transformed to city blocks and sealed as historical artifacts. However, as one of the solutions to the modern world, these green areas developed to be minor roads. Orbital road can be counted as an example of express road, Fevzipaşa Street as a major road, Haliç Street as a minor road and smallest unit roads as collector roads. Preference of land based transportation in a city which is that dense and giving up the sea transportation which is convenient for the character of the city, have been discussed for years. This caused assimilation of the cultural structure. During this time, the city has almost lost its cultural character. To launch wide boulevards by destroying historical artifacts has been considered as “westernization” and the connection with sea has been broken. The most exhausted city after World War 1 and Independence War, Istanbul, had lost its sea vehicles and its ports had been occupied and demolished. During the rehabilitation period, Haliç Ferry State-owned business enterprise, who had been struggling with financial problems, had went to bankrupt. Residents of Fatih who used to access districts as Kağıthane, Alibeyköy, Gaziosmanpaşa by sea, now access those districts with coastal roads and connections. Despite the fact that the most influential silhouette of Istanbul can be seen through Haliç and Marmara, tourists are toured with buses along the coastal road. Sea traffic which is vital for Istanbul is very low. In any cases, land road transportation is not faster than sea transportation, especially in a city like Istanbul. The most essential need of this city which had been extended/ developed in coastal directions is sea transportation. Unless there is an alternative, people wouldn't give up dense traffic of orbital road. The alternative in Istanbul where sea transportation connections were developed is that people would prefer sea transportation for long distances (Avcılar-Fatih, Büyükçekmece-Fatih, Sarıyer-Fatih) instead of congested traffic. In addition, creek areas (limnological routes) are on vertical axes (parallel to land development of the city) fitting perfectly for Istanbul. Around the corridors like Ayamama Creek, Çırpıcı Creek , Kağıthane Creek, Alibeyköy Creek, Sazlıdere, Büyükdere have been built-up and this caused development of the city on land direction (in terms of sewer systems). These creeks can be rehabilitated and they can be regulated for urban transportation and recreational green corridors. If sea and creek transports were full-grown integrated, traffic load in Istanbul would be reduced. Sea transportation alternative could be preferred by tourism agencies too. Passengers of cruise ships landing to Tophane, could be picked up with boats and be carried to Historical Peninsula. Therefore, the traffic load caused by buses would be eliminated. Tram transport will cause operational problems (such as possibility of city residents using the vehicle preserved only for tourists); but there is nothing that might cause operational problems with sea transportation.

3.3.4 Route and Parking Problems for Tourist Buses:

Tourist buses are one of the biggest sources of problems for Fatih district. These buses, which don't obey the routes assigned for them also cause danger by entering into railway system routes and narrow roads with houses with oriels. While historical Istanbul roads already have difficulties to carry the load of cars, they are also exposed to weight of the big

vehicles like buses. Tourist buses don't prefer to enter narrow rods of Historical Peninsula. Thereby they create load on coastal roads by parking road sides, congest one lane of those roads and occupy valuable lands. These parking vehicles cause visual pollution for historical silhouette and obstruct the historical perspective. To build an underground bus station that will serve only for tourist buses have become an imperative. For the localization, risks and advantages of alternatives should be elaborated and designed with details. Meanwhile, for the lands where historical walls are located; the possible pressure on orbital roads and on transport axes which are parallel to the historical walls should be calculated. Moreover, alternatives for coastal band might be considering these kinds of systems at Unkapanı part of Ragıp Gümüşpala Street since it become calmer there. Similarly the possible upcoming loads should be calculated for there. Kennedy Street is another alternative on the coast and Çatladıkapı region is a critical point where underground bus station can be built. For all these three alternatives, issues like archeological digging should be regarded as a part of the project and cultural assets should be preserved.

Appendix-7-2 Management Plan

Accessibility on Cultural Heritage Area

PROBLEM	OBJECTIVE	STRATEGY	ACTION	RESPONSIBLE INSTITUTIONS	OTHER INSTITUTIONS
Lack of research on the impacts of transportation investments on cultural heritage during the project design stage	**1.** Ensuring that the cultural properties of the Historic Peninsula are considered in transportation planning	**1.1.** Ensuring that the experts and decision makers involved in the transportation planning are informed about cultural heritage	**1.1.1.** Informing the experts, decision makers and technical crews in matters of cultural heritage and prepare training programs accordingly (1) iSTDM project (2)Traffic Survey (3) ???	IMM, Site Management Directorate, Trade Associations, Universities	The Ministry of Transportation, Maritime Affairs and Communications, TCDD, İETT, İ DO
Using the Historic Peninsula as a transit area and transfer centre. Because transportation by wheeled vehicles are the preferred mode of transport in the Historic Peninsula. And the rail systems are not developed enough Lack of prioritization of sea transportation, Absence of integration of different modes of transportation in the Site.	**2.** Reducing the pressure of the transportation investments on the Historic Peninsula and integrating different modes of transport	**2.1.** Establishing a mass transit-based transportation system in the Historic Peninsula which is mainly railway and seaway-oriented, high-capacity and high-quality and integrates different modes of transport in a way to feed and complement each other	**2.1.1.** To provide controlled entrance and exits of wheeled vehicles in and out of the Historic Peninsula and to arrange the geometries of road intersections (1) Road/Area Pricing (2) Traffic Cell (3) ???	IMM, Site Management Directorate, Fatih Municipality	The Ministry of Transportation, Maritime Affairs and Communications, TCDD, İETT, IDO, Traffic Branch Directorate
			2.1.2. To ensure the development of the rail system network in the Historic Peninsula with a new axes -Long Term Project-		
			2.1.3. To develop the sea transport capacity and to provide extensive use of the same -Long Term Project-		
			2.1.4. To review and accordingly arrange the routes of İETT mass transit system and to move the central station points out of the Historic Peninsula (1) Bus Terminal Transfer (2) Bus Priority Line (3) ???		
			2.1.5. To use specially designed public vehicles in the Site (1) ???		
			2.1.6. To execute the		

			implementations of a "One-Ticket System" and "Smart Ticket-Automation System" for integration with the metropolitan transportation system (1) Istanbul Card		
Insufficient pedestrian transportation arrangements Absence of bicycle lanes	**3.** Increasing possibilities of safe pedestrian and bicycle circulation in the Site	**3.1.** Ensuring that pedestrian circulation system and pedestrian areas are integrated with rail systems, highway mass transit system, sea transport and parking lots	**3.1.1.** To limit vehicle traffic in the Site and to organize pedestrian and bicycle transportation routes	IMM, Fatih Municipality	The Traffic Branch Directorate
Insufficient parking lots in the Historic Peninsula and using the roads as parking lots	**4.** Implementing parking lot policy in the management of vehicle parking in the Site	**4.1.** Analyzing the parking lots according to limitations imposed on the transportation system in the Historic Peninsula	**4.1.1.** To develop a "park and ride" system in order to reduce transportation by automobiles and taxis in central zones	IMM, Fatih Municipality	The Traffic Branch Directorate
			4.1.2. To implement short-term parking for the vehicles moving in the inner wall traffic		
			4.1.3. To encourage private automobile drivers to use the parking lots in Fatih District which are underused during the daytime		
			4.1.4. To assign 10 pm to 6 am as entry-exit hours of commercial load vehicles to the cultural heritage areas and to ensure that warehouses are kept open and security services in the zone are increased within those hours		
Lack of efficiency of seaway transportation in the Historic Peninsula	**5.** Using seaway transportation more effectively to access Surici	**5.1.** Benefiting from new solutions in seaway transportation and its management	**5.1.1.** Arranging terminals whose access is supported with distributing and collecting land public transportation systems	IMM	IDO
			5.1.2. Enabling the efficient management of parking opportunities for private automobile owners in the terminals		

			5.1.3. Putting frequent and punctual transportation implementations into practice coordinated with time scheduled public transportation systems		
Limited accessibility for disadvantaged groups and people with disabilities in the Site	**6.** Providing accessibility for disadvantageous groups	**6.1.** Taking the needs of disadvantaged groups into consideration in arrangements of pedestrian and vehicle transportation routes and signaling systems	**6.1.1.** To develop standards and make arrangements in order to meet the needs of disadvantaged groups in arrangements of pedestrian and vehicle transportation routes, transportation vehicles and signaling systems	IMM	The Traffic Branch Directorate
There is no regulation and enforcement for logistic activities and vehicles in the site	**7.** Providing a guideline/ regulation/enforcement for logistic activates and vehicles				
In the historical area, narrow and bendy road networks exist.	**8.**				

Appendix-7-3 Traffic Problem Map


BEYOĞLU
Kabataş
Karaköy
Eminönü
Sarayburnu
FATİH
Yenikapı
Halıç
Karagümrük Stadı
Baharatci_ys
Kuyumcu_Kitap
Gida_Basinyayin
Tekstil_Ayakkabi
Turizm_Otel
LEGEND
Fatih District Border
Traffic Attraction Points
Legal Tour Bus Parking Are
Illegal Tour Bus Parking Area
Accident (vehicle-vehicle)
Accident (vehicle-pedestrian
Loading areas
Problematic areas

Appendix-7-4 Road Circulation Map


Legend
Two-way
One-way
Pedestrianized

Appendix-7-5 Long List of TDM

Long-list of Measures for Transportation Demand Management (TDM)

Long-list of Measures for Transportation Demand Management (TDM)						SCORE
No	**TDM Measure**		**Place &Time**	**Explanation**	**Status**	
I. Promotion of Modal Shift						
1	Park and Ride	Car parks with connections to public transport that allow commuters and other people wishing to travel into city centers to leave their vehicles and transfer to a bus, rail system (rapid transit, light rail or commuter rail), or carpool for the rest of their trip	Istanbul - Turkey		Proposed in master plan studies 2008	16
			Shanghai - China	Set up 37 park-and-ride centers in two years 2009 - 2010	Already in force	
			Vientiane - Laos		Proposed in master plan studies from 2009 , no information update	
			Singapore	Park and ride scheme, park & ride card, park & ride ticket	Already in force	
			Berlin- Germany	44 P&R facilities 4947 P&R spaces all free public transit fees: 4.20 to 5.60 € round trip 1 adult		
			Hamburg- Germany	49 P&R facilities 9409 P&R spaces all free public transit fees: 3.30 to 5.20 € round trip 1 adult		
			Cologne- Germany	28 P&R facilities 5570 P&R spaces all free public transit fees: 4.60 to 6.40 € round trip 1 adult		
			Munich- Germany	24 P&R facilities 7128 P&R spaces 1120 free more than 1.50 € per day flat rate public transit fees: 4.60 € round trip 1 adult		
			Prague- Czech Republic	P&R lots are located in the vicinity of public transport stops, usually near metro stations. Drivers can check the occupancy of individual parking lots online at the Prague Transit Company website.		
1a	Bus Park and Ride	Park and ride facilities with dedicated carparks and bus services	Oxford- UK	operated the first such scheme initially with an experimental service operating part-time from a motel Buses start from 06:00 and operate through to 23:30 during weekdays and Saturdays. Return fees start from £2.40.	began in the 1960's in UK	14
			Norwich- UK	has the biggest park and ride in UK, operating from six separate sites around the city		
1b	Railway Park and Ride					13
1c	Bike and Ride	Using cycle boxes or racks near public transport terminals, mostly together with P&R car parks. This system can be promoted through integrated fare and tickets with public transport system.	Prague- Czech Republic	The P&R area also provide Bike&Ride service enabling cyclists to leave their bicycle at the parking lot for a refundable deposit of CZK 20.		17
			Germany- Münster	Facilities for storage of bikes at PT-stops range from small covered areas to electronic boxes, or even big insallations with maintenance and repair facilities. There are now 70 of these bike stations ('Radstationen'), equipped with 3000 storage places		
			Germany- Dresden	Cycle parking facilities are available at several bus and tram stops and commuter railway stations.		
			Paris- France	All metro and RER stations on the outskirts of the city have bike parking facilities.		
			Ferrara- Italy	The city have launched an experimental scheme for commuters. At the 5 main suburban bus terminals, a total of 200 bikes are available for registered users for their trips into the city.	began in 2003	
			Winchester, Hampshire- UK	The 'bikeabout' service provides free cycle loan for residents and visitors, with only an initial registration fee. This service is supported by the European Union, within the framework of the CIVITAS initiative (cleaner and better transport in cities).		
1d	Kiss and Ride	Include facilities for passenger drop-offs and pick-ups by automobile, as well as spaces for short-term parking A curbside lane for a taxi stand, private shuttle buses, and automobiles dropping off or picking up passengers should be located closer to the station entrance than short-term parking.	Prague- Czech Republic	Besides P+R parking, there are also K+R areas, where you can stop your car for 5 minutes and drop somebody to metro or pick somebody up.		16
			Sydney- Australia			
			USA	NSW (New South Wales), of the 307 stations on the network %39 have K+R		

Long-list of Measures for Transportation Demand Management (TDM)						SCORE
No	**TDM Measure**		**Place &Time**	**Explanation**	**Status**	
2	Improved coordination	Among modes - buses, trains, ferries and airports.	Bogota - Columbia	BRT network; transit facilities	Already in force	17
3	Transit Priority	Including bus lanes, queue-jumper lanes, bus-priority traffic signals, and other measures that reduce delay to transit vehicles				17
4	Reallocate Road Space	To transit and walking				15
5	Comfort improvements	Reduced crowding, better seats and cleaner vehicles.	Jakarta - Indonesia (2010)	Transit facilities; BRT operation	Already in force since 2010	18
6	Improved Stops and Stations	Including shelter (enclosed waiting areas, with heating in winter and cooling in summer), seating, Way finding and other Navigation Tools, washrooms, refreshments, Internet services, and other convenience and comfort features.				17
7	Lower fares and discounts, and more convenient fare payment	Such as electronic "smart cards"	Paris -France	Use only RATP card to access every type of public transport		17
8	Improved rider information and Marketing programs	Including real-time information on transit vehicle arrival	Europe including Paris, London…			17
9	Transit Oriented Development and Smart Growth	Which result in land use patterns more suitable for transit transportation.	Many cities in Japan	TOD		14
			Ulan Bator - Mongolia (2009)	Transit-oriented Development (TOD)	Proposed in master plan studies 2009	
			Manila - Philippines (2011)	TOD	Proposed in master plan studies 2011	
			Ha Noi - Viet Nam (2007)	TOD		
			Ho Chi Minh - Viet Nam (2005)	TOD		
10	Pedestrian and Cycling Improvements	That improve access around transit stops	Europe: Amsterdam, Barcelona, Berlin, Cophenagen, Paris North America: Boulder, Chicago, Davis, Ottawa, Portland, San Francisco Rest of the world: Beijing, Cape Town, Bogota, Perth			17
11	Bike and Transit Integration	Bike racks on buses, bike routes and Bicycle Parking near transit stops				17
12	Improved Security for transit users and pedestrians	Non-motorised transportation-public transit integration				18
13	Multi-Modal Access Guides	Which includes maps, schedules, contact numbers and other information on how to reach a particular destination by public transit	Paris - France	The site http://www.ratp.fr/ provides the guide for every personnel who want to access the public transport system in Paris. The client can find the itineraire, time and every information of transport system		16
14	Development of pedestrian facilities	Sidewalks, crosswalks, pedways	Ahmadabad - India (2009 - 2010)	Improvement of transit stations, BRT, pedestrian and bicycle facilities	Already in force	16
			Many European cities	including car-free commercial districts in older downtowns, and woonerf residential streets	Already in force	
			City of Madison- US	Adopted in September 1997, Madison's visionary plan for walking incorporates planning, designs, maintenance, and long-term goals and objectives. Madison was one of the first communities to adopt a separate plan for walking.	Already in force	
15	Develop pedestrian oriented land use and building design	In New Urbanism	Washington State DOT	Washington State Department of Transportation adopted a design guidance that integrates no motorized planning into the state's overall transportation infrastructure program by incorporating walking and cycling design requirements into all appropriate projects.	Already in force	14
16	Public Bike Systems (PBS)	which are automated bicycle rental systems designed to provide efficient mobility for short, utilitarian urban trips	Paris - France	a network of 20,000 specially designed bicycles distributed among 1450 stations throughout Paris	Already in force from 2007	16
			La Rochelle - France	launched a free bike-sharing program, Vé los Jaunes (Yellow Bikes); it is regarded today as one of the first truly successful bike sharing programs	Already in force from 1974	
			Copenhagen - Denmark	In 1995, the Free City-Bike Program was implemented by the City of Copenhagen. One thousand specially designed free City-Bikes were stationed at 120 stands around the City at train and subway stations, parking lots and large housing blocks	Already in force	
17	Development of cycling facilities	Build more bike lanes, bicycle parking space	Seoul - South Korea	Bicycle lane	Already in force	17
			Shanghai - China (2008)	Bicycle parking space at transit stations	Already in force	
			Bogota - Columbia	Bicycle lanes	Already in force	
			Portland - US	During the 1990's the City of Portland has developed an extensive bicycling infrastructure including on- and off-street routes, bicycle parking, and other facilities.	Already in force	
			Philadelphia - US	The City was awarded more than $3 million of Congestion Mitigation and Air Quality program funds to plan and implement a city-wide bicycle network featuring bike lanes, trails, and bicycle parking facilities.	Already in force	
			Tucson - US	With a network of more than 240 miles of bikeway already on the ground, the Tucson Bikeway Improvement Plan identifies more than 50 additional miles of striped bike lanes that will be added to the system by 2001.	Already in force	

Long-list of Measures for Transportation Demand Management (TDM)						SCORE
No	**TDM Measure**		**Place &Time**	**Explanation**	**Status**	
18	Integration of cycling and public transit	Public transport include the bus, train, ferry, and air transport	Taipei - Taiwan	Bicycles allowed to ride on subways, Taipei		16
			Many cities in Japan			
			Düsseldorf - Germany			
			France			
			Edmonton and Ontario - Canada			
			Los Angeles - US	Installing front-mounted bike racks on its buses; Each rack holds two bicycles, and features an easy-to-use spring-action latch that allows the mounting and dismounting of a bicycle in about 30 seconds		
			Cities in Netherlands	Bicycle parking at train stations, bicycle carriage on trains and coaches,		
			UK	Cycle-rail toolkit: Helping train operators make it easier for people to combine cycling with rail travel		
			Asia, Europe and America	Bicycle parking stations		
19	Taxi Service Improvements	Increasing the number of taxis in an area; Increasing the quality of taxi vehicles; Universal Design of taxi vehicles, including accommodating people in wheelchairs and with large packages; Reducing fares through regulation, competition, increased efficiency, incentives or subsidies; Allowing shared taxi trips (more than one passenger) and Paratransit services; Providing taxi stands, curb access and direct telephone lines.	TAXIBUS in the City of Rimouski Quebec - Canada	TAXIBUS operates Monday to Friday, serving 300 stops by predetermined schedules. Passengers, who pay $2.40 per ride or $70.55 per month, must reserve one hour ahead of time by phone	Already in force since 1993	13
20	Commuter Financial Incentives	This chapter describes various financial incentives that can be used to encourage use of more efficient commute modes. These include parking cash out, travel allowance, transit benefits, and rideshare benefits	Vancouver Airport - US	In 2006 the Vancouver Airport began to offer staff that does not drive alone to work a $50 monthly rebate. Within five months 17% of employees were participating.	Since 2006	13
			UK	Tax Policy Supports Commute Trip Reduction Programs	Since 1999	
			Many cities in Japan			
21	Transit-oriented development (TOD) and Smart growth		Many cities in Japan			14
			Ulan Bator - Mongolia (2009)	Transit-oriented Development (TOD)	Proposed in master plan studies 2009	
			Manila - Philippines (2011)	TOD	Proposed in master plan studies 2011	
			Ha Noi - Viet Nam (2007)	TOD		
			Ho Chi Minh - Viet Nam (2005)			
			Curitiba - Brazil			
			Guatemala City - Guatemala			
			Vancouver, Montreal and Toronto - Canada			
			San Francisco - US			
22	Promotional campaigns for the use of public transit and non motorized transport (NMT)		Phnom Penh - Cambodia			16
			Ha Noi - Viet Nam			
			Ho Chi Minh - Viet Nam			
			San Francisco - US			
			Thessaloniki - Greek			
II. Demand Suppression						
1	Road toll (fixed rates)	A fixed fee for driving on a particular road.	Many countries in the worlds	The cost is fixed for every vehicles		15
2	Congestion pricing (time-variable)	A fee that is higher under congested conditions than uncongested conditions, intended to shift some vehicle traffic to other routes, times and modes. Value pricing Area pricing	London	The standard fee for applicable vehicles is £10 per day if paid by midnight on the day of travel, £12 if paid by the end of the following day, or £9 per vehicle per day for each vehicle detected within the zone.	Already in force since 02/2003 The current rule is applied by April 2012	15
			Stockholm	The city of Stockholm, Sweden, began charging vehicles entering the inner city area on weekdays between 6:30 a.m. and 6:30 p.m US$1.27 to US$2.54 per trip, with a maximum daily charge US$8.00	Already in force since 01/2006	
			Durham- UK		introduced in 2002	
			Singapore, Europe	Charging is made for entry or travel in a congested zone, different from value pricing systems used in US, where travellers on a particular facility are given a choice between using faster toll lanes and slower free lanes		
3	Cordon fees	Fees charged for driving in a particular area.	Trondheim—Norway	Implemented a “toll ring” that surrounds the city’s downtown area. The toll ring has 12 toll stations and uses a total of 35 lanes	Already in force since 1991	14

Long-list of Measures for Transportation Demand Management (TDM)						SCORE
No	**TDM Measure**		**Place &Time**	**Explanation**	**Status**	
4	HOT lanes	A high-occupant-vehicle lane that accommodates a limited number of lower-occupant vehicles for a fee. HOT lanes work best on high-traffic roads. Without congestion, drivers have little incentive to pay the toll.	San Diego	Tolls ranging from 50 cents to $4 per one-way trip under regular conditions, and sometimes as high as $8	Already in force since 1998	12
			California	Tolls ranging from $0.75 to $3.50 per trip, depending on level of congestion	Already in force since 1998	
5	Mileage-based Registration Fees	This means that vehicle licensing and registration fees are prorated by vehicle mileage	Singapore		Already in force since 2004	14
6	Mileage-based Vehicle Purchase Taxes	Purchase taxes could be converted to distance-based taxes	Greenberg	Purchase taxes average about $1,200 per vehicle	Already in force since 2000	14
7	Mileage-Based Emission Fees	Mileage-based emission fees that reflect each vehicle's emission rate would give motorists with higher polluting vehicles a greater incentive to reduce their mileage, and conversely, give motorists who must drive high mileage an incentive to choose less polluting vehicles	German	Vehicles over 12 tons would be required to pay Euros 0.14-0.19 (0.12-0.16 US dollars) per kilometer, with variation depending on exhaust emissions and axles	beginning in 2003	10
8	Low Emission Zone	Only vehicles that don't conform to higher emission standards are charged	London	Aim of reducing the pollution emissions of diesel-powered commercial vehicles in the city	introduced in stages between 2008 and 2012	13
9	Controlled Vehicular Access	Automated Vehicular Access (CVA) * *(*) The CVA system involves the use of cameras installed at entrance and exit points into Valletta using number plate recognition software and tailor-made software to calculate costs for each vehicle. There are nine entry points and six exit points around Valletta. The scheme is in operation from Monday to Friday (08.00 - 18.00 hrs) and Saturday (08.00 - 13.00 hrs), all other times are free.* *Charges depend on the duration of each trip into the city, as follows* *30 minutes, or less- Free* *One hour (minus first 30 mins)- 0.82 Euro* *Every additional 30 mins- 0.82 Euro* *Maximum daily charge- 6.52 Euro*	Valetta- Malta	The number of vehicles entering the city reduced from 10.000 to 7.900 %60 drop in car stays by non-residents of more than eight hours %34 increase in non-residential cars visiting the city for an hour or less	introduced in 2007	14
		Residents' pass system	Genoa-Italy		started the trial system in 2003	
		Ecopass system	Milan-Italy	A pollution charging system that drivers pay based on how much pollution their vehicles generate. The Euro engine emissions standard is used as the basis for deciding how much or how litttle pollution vehicles emit, and thus whether they pay the Ecopass fee or not.	began operation in early 2008	
10	Weight-Distance Fees	Weight-distance fees are a mileage-based road use charge that increases with vehicle weight	Switzerland	The Heavy Vehicle Fee charges heavy trucks (over 3.5 tones) based on their gross weight, kilometers driven and emissions	Already in force since 01/2001	14
11	Pay-As-You-Drive insurance	Prorates premiums by mileage so vehicle insurance becomes a variable cost.	Netherlands	Charges vehicles based on its environmental characteristics, and the time and place of each journey, with higher rates under congested conditions	Already in force since 2008	14
12	Fuel taxes	Increasing Fuel Taxes and Fees	Many countries in the world	Imposed on fuels which are intended for transportation		12
13	Environment taxes	Motorist must payer the taxes by emission the carbone in the environnement	France	17 Euro/ton Carbone	From 2010	14
14	Time of day car ban		Vietnam	Taxi ban on some street in rush hour; truck ban in centre area in office hour		16
15	Car free day	Encourages motorists to give up their car for a day	European	Ten local authorities in Britain, including five London boroughs (Camden, Lambeth, Merton, Southwark and Sutton) are participating in European Car Free Day	22nd September 2000	15
			Bogota - Columbia		In February 24th, 2000	
16	Ban on heavy polluting vehicles		Shanghai (2008)	Bans on entry of cars below exhaust emission standards	Already in force	16
17	Ban on trucks	By hours, by load weight and by area of urban	Ha Noi - Viet Nam	Ban on trucks by hours and by area	Already in force	16
			Dubai - UAE			
			Abu Dhabi - UAE			
18	Restrictions on automobile use regarding particular areas or hours		Manila - Philippines			15
			Jakarta - Indonesia			
			Netherlands (2011)			
			Surabaya - Indonesia			
19	Restrictions on car ownerships	Quota system	Shanghai - China (2008)			12
			Beijing - China	Ban vehicles registered outside Beijing from entering the city during rush hour		
			Singapore	Ownership requires a certificate of entitlement (valid for 10 years) and the quota system is based on categories of vehicles differentiated by engine size	Since 1990	
			Bogota - Columbia			
20	Telecommuting	Allowing employees to work from home or a non-office location one or more days a week	Los Angeles - First Interstate Bank	The objectives of the program include increased productivity and flexibility for employees.	It established a telecommuting program in 1991	13

Long-list of Measures for Transportation Demand Management (TDM)						SCORE
No	**TDM Measure**		**Place &Time**	**Explanation**	**Status**	
21	Video-conferencing; Distance Learning	The use of live video connections as a substitute for physical meetings.	North American, Europe, Asia developed country, developing country…			14
22	Internet-shopping and Errands	Telecommunications is increasingly used for shopping, banking and other types of errands.	US			15
			Many countries in Europe			
			Japan			
23	Electronic Government	Telecommunications by government agencies to provide services that would otherwise require visiting a government office.	Arizona - State of Arizona Telecommuting Program	Arizona state agencies have allowed telecommuting since a pilot project was established in 1989. The program includes policies and information materials to promote telecommuting within all state agencies	Since 1989	16
			North American, Europe, Asia developed country, developing country…			
24	Share Parking	Sharing parking spaces typically allows 20-40% more users compared with assigning each space to an individual motorist	San Francisco		2006	14
25	Regulate Parking Use	Regulate based on the type of vehicles or users; Limit parking duration …				16
26	Parking Maximums	Limit on the maximum amount of parking capacity allowed at particular sites	Ulaanbaatar (2009)	Number coding; parking restrictions	Proposed in master plan studies 2009	11
			Shanghai (2008)	Car plate quota (by bidding)	Already in force	
27	Smart Growth or New Urban	Encourage more compact, mixed, multi-modal development to allow more parking sharing and use of alternative modes.	In every New Urban area			14
28	Increase Capacity of Existing Facilities	Increase parking supply by using otherwise wasted space, smaller stalls, car stackers and valet parking.	California			16
29	Minimize discounts for long-term parking					14
30	Price on-street parking in residential neighborhoods	Allow motorists to lease on-street parking spaces for example, let residents and businesses lease the parking spaces in front of their homes or shops, which they could use themselves, reserve for their visitors and customers, or rent to other motorists.	Aspen, Colorado		From 1991	12
			San Francisco			
31	Provide free or discounted parking to Rideshare vehicles					13
32	Campaigns to refrain from driving automobiles		Beijing - China (2008-2009)			15
			Brussels - Belgium (2009-2010)			
			Bogota - Columbia			
			Vancouver, Montreal - Canada			
III. Demand Dispersal						
1	Staggered Shifts	Shifts are staggered to reduce the number of employees arriving and leaving a worksite at one time. This has a similar effect on traffic as flextime, but does not give individual employees as much control over their schedules.	Hanoi - Vietnam	Changed the schedule of student, high school student and service employee	Already in force since 2011	14
2	Flextime	This means that employees are allowed some flexibility in their daily work schedules.	TransAmerica Financial Corporation - Los Angeles - US	Employees are allowed to start at any time between 7:00 and 9:00 a.m., and depart between 3:15 and 5:45 p.m	Already in force since 1974	14
3	Compressed Workweek (CWW)	Employees work fewer but longer days, such as four 10-hour days each week (4/40), or 9-hour days with one day off every two weeks (9/80)	Southern California Association of Governments -California - US	Employees work 9-hour days and get every other Friday off	Already in force since 1980	12
4	Intelligent traffic information system (ITS)	Roadside infrastructure for collecting traffic information (communication network, CCTV, vehicle detectors, etc.)	Ha Noi - Viet Nam (2011 - 2012)	SAPI projects; Jica ITS Grand Aids project for Ring road no 3		18
		Variable message signs (VMS) provided along major corridors. Traffic control center		VOV giao thông		
			Singapore			
			Kuala Lumpur - Malaysia			
			Bangkok - Thailand			
			Seoul - South Korea			
			Japan			
			Medellin - Columbia			

Long-list of Measures for Transportation Demand Management (TDM)						SCORE
No	**TDM Measure**		**Place &Time**	**Explanation**	**Status**	
IV. Efficient Use of Road Space						
1	High-occupancy vehicles lanes (HOV)	The lanes that give priority to High Occupant Vehicles including bus, tramway, carpools, vanpools	Jakarta - Indonesia	BRT system	Already in force	16
			Bangkok - Thailand	Introduction of bus lanes	Proposed in master plan studies	
			Manila	Bus lanes	Already in force	
			California	The first state in the country with the most HOV lanes- 88 HOV facilities	Already in force since 2009	
			Netherlands	The first HOV lane in Europe was opened in the Netherlands. The facility did not attract enough users to overcome public criticism and was converted to a reversible lane open to the general traffic after the judge in a legal test case	opened in 1993 operated until 1994	
			Trondheim-Norway	An undivided four-lane arterial road.	opened in 2001	
2	Intersection controls that give priority to HOVs; Queue-jumping lanes	Other vehicles must wait in line to enter a highway or intersection, but HOVs enter directly	Paris - France	Priority for Tramway and BHNS system	Already in force	16
3	Carpooling and Vanpooling	The sharing of car journeys so that more than one person travels in a car	Los Angeles	The Metro Vanpool Program was launched May 2007 providing lease and fare incentives to new and existing public vanpools	Already in force since 2007	14
			Washington	Casual carpooling in the Washington, DC area is well organized with approximately 3000 people, or 11% of carpoolers, doing it	Already in force	
			San Francisco - US	Approximately 8,000 to 10,000 people, or nine percent of total carpoolers, participate in casual carpooling in the San Francisco area	Already in force	
4	Carsharing	Carsharing refers to automobile rental services intended to substitute for private vehicle ownership.	Paris	2,000 electric-powered vehicles that subscribers can drive off without booking at dozens of sites 24 hours a day and then leave anywhere in the city		14
5	Encourage shippers to use modes with lower social costs	such as rail and water transport rather than truck for longer-distance shipping	Canadian - Canadian Pacific Railway's Expressway	Expressway is a revolutionary short- to medium-haul transportation service that combines the best of truck and rail to help reduce costs and better serve customers' needs		14
6	Organize regional delivery systems	Fewer vehicle trips are needed to distribute goods (e.g., using common carriers that consolidate loads, rather than company fleets).	New York City	Off-Peak Freight Delivery		15
7	Improve rail and marine transportation infrastructure and services	To make these modes more competitive with trucking	Canada	Marine transportation: Ice-free, deep water ports Transport Canada is responsible under the Canada Shipping Act to ensure safe and environmentally responsible commercial marine operations, and the Canada Marine Act, to oversee Canada's ports. The Port of Vancouver is Canada's busiest, handling over 70 million tonnes of cargo annually, and the Port of Prince Rupert offers North America's shortest and most efficient land-sea route to Asian markets.		16
			Rotterdam- Netherlands	Water-taxi (shared-ride water minibuses) Water-bus fast ferries Aqualiner ferry Railways operates trains for commuters, business travelers, and tourists throughout the region		
8	Improve scheduling and routing to reduce freight vehicle mileage and increase load factors		UK Sustainable Freight Policy		Since 1999	14
9	Reduce total freight transport by reducing product volumes and unnecessary packaging	Relying on more local products, and sitting manufacturing and assembly processes closer to their destination markets.				13
10	Use smaller vehicles and human powered transport, particularly for distribution in urban areas					15
11	Implement fleet management programs	That reduces vehicle mileage, use optimal sized vehicles for each trip, and insure that fleet vehicles are maintained and operated in ways that reduce external costs (congestion, pollution, crash risk, etc.).				15
12	Change freight delivery times to reduce congestion.					17
13	Pricing and tax policies to encourage efficient freight transport.					14
14	Increase freight vehicle fuel efficiency and reduce emissions through design improvements and new technologies	These include increased aerodynamics, weight reductions, reduced engine friction, improved engine and transmission designs, more efficient tires, and more efficient accessories.				14
15	Improve vehicle operator training	To encourage more efficient driving.				16

Long-list of Measures for Transportation Demand Management (TDM)						SCORE
No	**TDM Measure**		**Place &Time**	**Explanation**	**Status**	
16	Traffic calming (humps, median islands, speed limits, vehicle restrictions, warning signs, roundabouts, street closures, stop signs, Woonerf)	Refers to various design features and strategies intended to reduce vehicle traffic speeds and volumes on a particular roadway	The city of West Palm Beach, Florida	Developed "second generation traffic calming" which means that traffic calming design features are normally implemented when a street is built or reconstructed	2001	16
			Seattle, Washington	Implemented more than 700 traffic circles on residential streets and adds dozens more each year	Already in force	
			Zurich, Switzerland	Improved public transit by re-locating transit stops, fine-tuning transit priority while renewing streetcar track and stations. Traffic volumes were maintained while reducing the street space through careful channelization and traffic signal design.		
17	Restrictions on para-transit vehicles		Ha Noi - Viet Nam	Restrictions on xichlo traffic	Already in force	14
			Dhaka - Bangladesh	Restrictions on rickshaws, Dhaka	Already in force	
18	Reduction of the on-street parking	To increase the road space in use	Ha Noi - Viet Nam	No car parking on the almost streets of ancient quarter	Already in force	17
19	Active modes through signal	For priority public transport such as tramway, BRT, Bus	Many courtiers in the worlds			18
20	Coordinate traffic signals to improve traffic flow		Hanoi, Viet Nam	Green wave in the streets (Pho Hue, Hang Bai, Ba Trieu...)	Already in force	18
21	No cars lanes					6
22	Tidal flow (or Flexible divider)					13

Appendix-7-6 Short List of TDM

Project measure Criteria

				Weights (percent)				
				A	B	C	D	E
1	Easiness of Implementation	1.1	Easiness of Decision Making	0.33	0.2	0.2	0.1	0.06
		1.2	Easiness of having consensus between related departments					0.06
		1.3	Not require big investment and financial source					0.08
2	Necessity	2.1	Neciessity in protection of historical heritage	0.33	0.4	0.45	0.3	0.1
		2.2	Necessity in implementation in a big scale					0.3
3	Benefit	3.1	Improvement of security	0.33	0.4	0.35	0.6	0.05
		3.2	Reduction of congestion					0.1
		3.3	Reduction of noise, vibration and air pollution					0.1
		3.4	Improvement of parking					0.1
		3.5	Improvement of condiyions about pedestrians					0.05

Evaluation Type A

No	TDM Measures	%
1	Improving pedestrian and bicycle transportation	5.00%
2	Developing Bicycle Transportation Services	4.85%
3	Reducing Road-side Parking	4.85%
4	Public Transportation Priority	4.80%
5	Integration of Bicycle and Public Transportation	4.78%
6	Campaigns about discouraing private car usage	4.77%
7	Limitation of freight vehicles access	4.72%
8	Bike and Ride	4.66%
9	Prohibiting the vehicles at specific hours during daytime	4.64%
10	Improving the Stops and Stations	4.60%
11	Improving the security for public transportatation users and pedestrians	4.59%
12	Enhancing the capacity of present services	4.58%
13	İntelligent transportation systems	4.53%
14	Smart parking system	4.49%
15	Advanced coordination between transportation modes	4.44%
16	Changing freight delivery times to reduce congestion	4.40%
17	Traffic calming (humps median islands, speed limits, vehicle restrictions, warning signs, roundabouts , street closures, stop signs)	4.38%
18	Comfort improvements	4.33%
19	High occupancy vehicle lines	4.27%
20	Advanced users information system and marketing programmes	4.20%
21	Multi-modal access guides	4.17%
22	Price reduction, discounts and developing more convenient payment methods	3.94%

Evaluation Type B

No	TDM Measures	%
1	Improving pedestrian and bicycle transportation	5.04%
2	Developing Bicycle Transportation Services	4.89%
3	Reducing Road-side Parking	4.84%
4	Public Transportation Priority	4.84%
5	Integration of Bicycle and Public Transportation	4.80%
6	Campaigns about discouraing private car usage	4.77%
7	Prohibiting the vehicles at specific hours during daytime	4.72%
8	Limitation of freight vehicles access	4.69%
9	Bike and Ride	4.67%
10	İntelligent transportation systems	4.65%
11	Enhancing the capacity of present services	4.61%
12	Improving the security for public transportatation users and pedestrians	4.60%
13	Improving the Stops and Stations	4.56%
14	Smart parking system	4.51%
15	Advanced coordination between transportation modes	4.46%
16	Changing freight delivery times to reduce congestion	4.36%
17	Comfort improvements	4.35%
18	Traffic calming (humps median islands, speed limits, vehicle restrictions, warning signs, roundabouts , street closures, stop signs)	4.30%
19	High occupancy vehicle lines	4.27%
20	Advanced users information system and marketing programmes	4.18%
21	Multi-modal access guides	4.01%
22	Price reduction, discounts and developing more convenient payment methods	3.88%

Evaluation Type C

No	TDM Measures	%
1	Improving pedestrian and bicycle transportation	5.03%
2	Developing Bicycle Transportation Services	4.88%
3	Reducing Road-side Parking	4.85%
4	Public Transportation Priority	4.84%
5	Integration of Bicycle and Public Transportation	4.80%
6	Campaigns about discouraing private car usage	4.76%
7	Prohibiting the vehicles at specific hours during daytime	4.70%
8	Limitation of freight vehicles access	4.68%
9	Bike and Ride	4.66%
10	İntelligent transportation systems	4.64%
11	Enhancing the capacity of present services	4.60%
12	Improving the Stops and Stations	4.58%
13	Improving the security for public transportatation users and pedestrians	4.57%
14	Smart parking system	4.50%
15	Advanced coordination between transportation modes	4.48%
16	Changing freight delivery times to reduce congestion	4.37%
17	Comfort improvements	4.33%
18	Traffic calming (humps median islands, speed limits, vehicle restrictions, warning signs, roundabouts , street closures, stop signs)	4.32%
19	High occupancy vehicle lines	4.28%
20	Advanced users information system and marketing programmes	4.19%
21	Multi-modal access guides	4.06%
22	Price reduction, discounts and developing more convenient payment methods	3.90%

Evaluation Type D

No	TDM Measures	%
1	Improving pedestrian and bicycle transportation	5.11%
2	Developing Bicycle Transportation Services	4.93%
3	Public Transportation Priority	4.85%
4	Integration of Bicycle and Public Transportation	4.83%
5	Prohibiting the vehicles at specific hours during daytime	4.83%
6	Reducing Road-side Parking	4.82%
7	Campaigns about discouraing private car usage	4.77%
8	İntelligent transportation systems	4.74%
9	Limitation of freight vehicles access	4.70%
10	Bike and Ride	4.69%
11	Improving the security for public transportatation users and pedestrians	4.65%
12	Enhancing the capacity of present services	4.64%
13	Smart parking system	4.55%
14	Improving the Stops and Stations	4.51%
15	Advanced coordination between transportation modes	4.44%
16	Comfort improvements	4.42%
17	Changing freight delivery times to reduce congestion	4.31%
18	High occupancy vehicle lines	4.25%
19	Traffic calming (humps median islands, speed limits, vehicle restrictions, warning signs, roundabouts , street closures, stop signs)	4.19%
20	Advanced users information system and marketing programmes	4.16%
21	Price reduction, discounts and developing more convenient payment methods	3.81%
22	Multi-modal access guides	3.79%

Evaluation Type E

No	TDM Measures	%
1	Improving pedestrian and bicycle transportation	4.92%
2	Public Transportation Priority	4.86%
3	Reducing Road-side Parking	4.81%
4	Developing Bicycle Transportation Services	4.78%
5	Campaigns about discouraing private car usage	4.75%
6	İntelligent transportation systems	4.71%
7	Integration of Bicycle and Public Transportation	4.71%
8	Bike and Ride	4.69%
9	Improving the Stops and Stations	4.64%
10	Enhancing the capacity of present services	4.57%
11	Prohibiting the vehicles at specific hours during daytime	4.57%
12	Smart parking system	4.56%
13	Limitation of freight vehicles access	4.55%
14	Improving the security for public transportatation users and pedestrians	4.54%
15	Advanced coordination between transportation modes	4.54%
16	Changing freight delivery times to reduce congestion	4.36%
17	Comfort improvements	4.35%
18	Multi-modal access guides	4.30%
19	High occupancy vehicle lines	4.30%
20	Traffic calming (humps median islands, speed limits, vehicle restrictions, warning signs, roundabouts , street closures, stop signs)	4.28%
21	Advanced users information system and marketing programmes	4.21%
22	Price reduction, discounts and developing more convenient payment methods	3.99%

Appendix-8 Newspaper Report of

Smart Parking System

İstanbul'da "akıllı otopark" dönemi

Ekleyen: Betül Atasoy
Tarih: 25 Ocak 2013
Saat: 10:07

Kaynak: Dünya Gazetesi

Tarihi Yarımada'da trafik yükünü azaltmak için "akıllı otopark"lar hizmete sokuldu.

İstanbul Büyükşehir Belediyesi, Tarihi Yarımada'da trafik yükünü azaltmak için "akıllı otopark"ları hizmete soktu. Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek.

İstanbul Büyükşehir Belediyesi'nden yapılan açıklamaya göre, Tarihi Yarımada'da trafik yükünü azatlamak için "akıllı otopark"ları devreye aldı.

"Park et servisle devam et" sistemiyle vatandaşlar araçlarını otoparklara bıraktıktan sonra yoğun bölgelere ücretsiz servis araçlarıyla taşınacak.

İstanbul Büyükşehir Belediyesi, Japon Uluslararası İşbirliği Ajansı (JİCA) ile pilot bölgede hizmete alınan uygulama kapsamında, Vatan Caddesi Fatih Katlı Otoparkı, Migros Yol Üstü, Gedikpaşa, Muratpaşa ve İskender Paşa T otoparkları vatandaşlara hizmet verecek.

Vatandaşlar otoparkların dolu olup olmadığını, cep telefonlarından, trafik yoğunluk haritalarından öğrenebilecek. Güzergahta olan vatandaşlar ise Vatan Caddesi, Atatürk Bulvarı, Mustafa Kemal Bulvarı üzerine konulan LED ekranlardan otoparkların doluluk oranlarına göre planlama yapabilecek.

Çalışmayla Tarihi Yarımada'da trafik yoğunluğu azaltılırken, vatandaşlar zamandan ve yakıttan tasarruf sağlayacak. Vatandaşlar, Beyazıt, Gedikpaşa gibi yoğun trafiğe sahip bölgelerde otopark sorunu yaşamayacak.

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Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek.

Etiketler
İstanbul Ulaşım Tarihi Yarımada

İlgili Diğer Bağlantılar
İstanbul'da siluet zirvesi
Kent cinayete kurban gidecek
3. Köprü zarar edecek
Kadıköy-Kartal bayramda 29 dk
Başkan Topbaş; "3. Köprü trafikteki ağır vasıta yoğunluğunu alacak"

İSPARK'tan Akıllı Otopark Uygulaması

İstanbul Büyükşehir Belediyesi tarafından trafik yoğunluğunu ve park sorunu hafifletmek için geliştirilen akıllı otopark uygulaması pilot bölge olan Tarihi Yarımada'a başladı.

BENZER HABERLER
» İstanbul'un Trafik Sorunu 2014'te Çözülecek
» İstanbul'un Trafik Sorunu 2016'ta Çözülecek
» Polaris ile İspark, Mısır'ın Trafik ve Park Sorununu Çözecek
» İstanbul'daki Park Sorunu İçin Yeni Çözüm
» Kat Mülkiyeti Sorunu

İstanbul Büyükşehir Belediyesi "akıllı otopark"larla trafik yoğunluğunu azaltmak ve park sorununu çözmeyi hedefliyor..

Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek. "Park et servisle devam et" sistemiyle vatandaşlar araçlarını otoparklara bıraktıktan sonra yoğun bölgelere ücretsiz servis araçlarıyla taşınacak. İstanbul Büyükşehir Belediyesi, Japon Uluslararası İşbirliği Ajansı (JICA) ile pilot bölgede hizmete alınan uygulama kapsamında, Vatan Caddesi Fatih Katlı Otoparkı, Migros Yol Üstü, Gedikpaşa, Muratpaşa ve İskender Paşa otoparkları vatandaşlara hizmet verecek.

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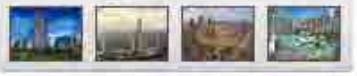
Kaynak : Sabah

25-01-2013 11:18:50
Bu haber toplam 675 defa okunmuştur

Sarphan Finans Park



EN BEĞENİLEN PROJELER

Metropol İstanbul — 4 Sıra
Varyap
4 Yorum

Şehrizar Konakları — 5 Sıra
Gap İnşaat
4 Yorum

Dumankaya Modern — 7 Sıra
Dumankaya İnşaat
7 Yorum

Rose Marine — 8 Sıra
Gül Yapı
22 Yorum

Novus Residence — 10 Sıra
Taş Yapı
20 Yorum

KONUT KREDİLERİ

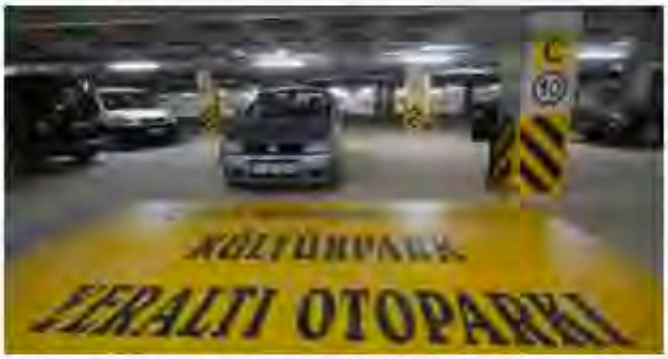
Finansbank	120 Ay	0,95	Başvur
Garanti	120 Ay	1,27	Başvur
Türkiye İş Bankası	120 Ay	0.98	Başvur
VakıfBank	120 Ay	0,85	Başvur

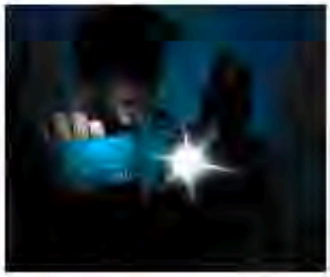
Tüm Oranları Görmek için Tıklayınız

Akıllı otopark dönemi başladı!

İstanbul Büyükşehir Belediyesi, Tarihi Yarımada'da trafik yükünü azaltmak için 'akıllı otopark'ları hizmete soktu. Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek. İstanbul Büyükşehir Belediyesi'nden yapılan açıklamaya göre, Tarihi Yarımada'da trafik yükünü azatlamak için 'akıllı otopark'ları devreye aldı.

AA | 24 OCAK 2013, 17:28





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Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek.

Gümrükler iş dünyasına hizmet etti

Gümrük ve Ticaret Bakanlığı Müsteşarı Ziya Altunyaldız, gümrüklerde etkin işletim modelleri ile iş dünyasına yıllık 100 milyon avro destek sağlandığını bildirdi.Gümrük ve...

Euro kazandırdı

İstanbul Menkul Kıymetler Borsası'nda (İMKB) işlem gören hisse senetleri haftalık bazda ortalama yüzde 0,29 değer kaybederken, İMKB 100 Endeksi 249,77 puan azalarak 84.75...

The Economist'ten ilginç iddia

Alman halkının, vergi paralarıyla Kıbrıs Rum bankalarına yardım edilmesi fikrine karşı olduğuna işaret edilen yazıda, Alman istihbaratının Kıbrıs Rum bankalarına yapılaca...

BUDO'ya büyük ilgi

Bursa Büyükşehir Belediyesi, vatandaşlardan gelen yoğun talepler üzerine başlattığı deniz seferlerinin ikinci gününde tam kapasiteye ulaştı. Büyükşehir Belediyesi'nin Nor...

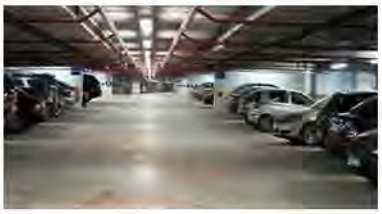
İMKB'den sert hamle

Endeks dünkü kapanışa göre 1.682,79 puan gerilerken hisse senetleri ortalama yüzde 1,95 oranında değer kaybetti. Güne sınırlı da olsa alıcılı başlayan endeks, en yüksek 8...

24.01.2013 17:27:20

İstanbul'da "akıllı otopark" dönemi başladı

HABER



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İlgili Haberler
- Robotlar park edecek!

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Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek.

Foto Galeri »

Mesut Özil'in ölçüleri alındı

İstanbul'da akıllı otopark dönemi başladı

İstanbul Büyükşehir Belediyesi, trafik yükünü azaltmak için öyle bir uygulamaya imza attı ki...

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BU OTOPARKLAR HİZMET VERECEK

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YOĞUNLUK ORANI HARİTALARDAN ÖĞRENİLECEK

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Akıllı otopark dönemi başladı

Büyükşehir Belediyesi, Tarihi Yarımada'da trafik yükünü azaltmak için 'akıllı otopark'ları hizmete soktu

24 Ocak 2013 - 17:27

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OTOPARKTAN SONRA SERVİS

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Haberin Olsun

- 7 yılda 52 yıl yaşlandı!
- Kız kardeşinden Rambo'ya şantaj
- Oyuncu Saadet Işıl Aksoy'ın acı günü
- Doğumunu köpeği izledi
- Times Meydanı'nı böyle ısıttı
- Yeni yılda yenilenin!
- Anne doğulmaz, olunur
- 'Gangnam Style' bir gezi
- 'Sihir yapınca mutlu oluyorum'
- 'Sitcom'da oynamaktan sıkıldım'

Tüm haberler (24)

İstanbul'da "Akıllı Otopark" Dönemi Başladı

Haber Yayım Tarihi : 24.01.2013 17:09
Anadolu Ajansı [4274306]

İstanbul Büyükşehir Belediyesi, Tarihi Yarımada'da trafik yükünü azaltmak için "akıllı otopark"ları hizmete soktu.

Sneijder Geldi Ne Hissediyorsun?

Sevenlerini Çok Üzecek

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Muhabir: Lale Bildirici

Yayıncı: Sibel Erlürk Kurtoğlu - İSTANBUL

SABAH

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5 günlük hava durumu

25 Ocak 2013, Cuma | Takip et: @sabah | Beğen 224b | +1 1.284 | İstanbul | 11/7°C

ANA SAYFA | SPOR | GÜNAYDIN | GÜNDEM | EKONOMİ | YAŞAM | DÜNYA | SABAH TV | ASTROLOJİ | ÇİZERLER | YAZARLAR

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Yaşam

İstanbul'da "Akıllı otopark" dönemi başladı

25.01.2013 AA A+ A-

İstanbul Büyükşehir Belediyesi, Tarihi Yarımada'da trafik yükünü azaltmak için "akıllı otopark"ları hizmete soktu. Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek. "Park et servisle devam et" sistemiyle vatandaşlar araçlarını otoparklara bıraktıktan sonra yoğun bölgelere ücretsiz servis araçlarıyla taşınacak. İstanbul Büyükşehir Belediyesi, Japon Uluslararası İşbirliği Ajansı (JİCA) ile pilot bölgede hizmete alınan uygulama kapsamında, Vatan Caddesi Fatih Katlı Otoparkı, Migros Yol Üstü, Gedikpaşa, Muratpaşa ve İskender Paşa otoparkları vatandaşlara hizmet verecek.

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Haberi Dinle

00:00 / 01:32

Yorum Yap | Editöre e-posta | Yazıyı Gönder | Çıktı Al

224b | 3 | 0

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GÜNLÜK BURÇ YORUMLARI

Kova

20 Ocak - 18 Şubat

Bugün olaylara mantıklı bir yorum getirerek, çevrenize örnek olacaksınız.. Karşıt ilişkilerinizde temkinli davranmaya yönelik davranışları benimsiyorsunuz.... ayrıntılar »

Türkiye

İstanbul 13 C | 77.734 | 1.790 | 2.310

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SON DAKİKA | GÜNDEM | POLİTİKA | EKONOMİ | DÜNYA | TEKNOLOJİ | SPOR | KÜLTÜR SANAT | YURTTAN | SAĞLIK | MAGAZİN | YAZARLAR | BUGÜNKÜ TÜRKİYE

İstanbul'da "akıllı otopark" dönemi başladı

24 Ocak 2013 Perşembe - 17:10

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0

İSTANBUL - AA - İstanbul Büyükşehir Belediyesi, Tarihi Yarımada'da trafik yükünü azaltmak için "akıllı otopark"ları hizmete soktu. Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek.

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Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek.

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Yazdır

SON DAKİKA

21:57

- 21:57 DNA topakları fırlatacak
- 20:50 Havuzda kendisinden geçti
- 19:34 Mega Center'da korkutan yangın
- 19:26 Özgür Çek, 3.5 yıl için...
- 19:14 Gediz'de köylüleri helikopter...
- 18:55 Fenerbahçe deplasman kabusunu yendi
- 18:22 Futbolcu gibi transfer ediliyorlar
- 17:10 Seren Katırcıoğlu serbest bırakıldı

SİNEMA

- 17:05 G.Birliği: 1 - Akhisar B.: 0
- 17:00 Taksim Tarlabaşı çıkışı kapatıldı ...
- 16:45 İstanbul'da elektrik kesilecek
- 16:20 Patriotlar aktif hale getirildi
- 16:15 Korkmaz: Biz daha disiplinli...
- 16:00 Oğlu öldürülen anne: Uyuyamıyorum
- 15:55 İ.B.B.: 4 - Bursaspor: 1 (maç...
- 15:45 Nükleer santral için referandum
- 15:30 Rektör Prof.Dr. Budak kurtarılamadı
- 15:15 Putin'e destek yüzde 62'ye yükseldi

26.01.2013
NAMAZ VAKİTLERİ
İSTANBUL

İmsak	5:28
Güneş	7:13
Öğle	12:28
İkindi	15:04
Akşam	17:22
Yatsı	18:55
Kıble Sa.	10:29

Müjdem Tenbih
Tenbih Müddeti

İnsan hüsn-ü zanna memurdur


Isparta Kahramanları dünyayı üç yüzlü


Bediüzzaman'ın mektubunun muhatabı


Hüsrev Altınbaşak'ın Risale-i Nur tarihindeki


Said Nursi'nin ırkı üzerinden tartışmalarda

25 Ocak 2013 Cuma 00:29

Büyükşehir 'akıllı otoprakları' hizmete alıyor

İstanbul Büyükşehir Belediye Başkanlığı tarihi yarımadada trafik yükünü azatlamak için "akıllı otopark" ları hizmete alıyor.

"Park et servisle devam et" sistemiyle vatandaşlar araçlarını otoparklara bıraktıktan sonra yoğun bölgelere ücretsiz servis araçlarıyla taşınacaklar.

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Yapılan çalışmayla Tarihi yarım ada da trafik yoğunluğu azaltılırken, vatandaşlar zamandan ve yakıttan tasarruf sağlayacak. Beyazıt, Gedikpaşa, gibi yoğun trafiğe sahip bölgelerde otopark sorunu yaşamayacaklar.

Otoparka otomobilini bırakan vatandaşlar 07.00-09:00 ve 17:00-19:00 saatleri arası 15 dakikada bir, diğer saatlerde 20 dk'da ring yapan servislerle sürücüler ve beraberindekiler ÜCRETSİZ OLARAK otoparklardan alınarak otoparklara bırakılacaklar.

Otorehberi

YAZARLAR

İstanbul Büyükşehir Belediyesi akıllı otoparkları hizmete soktu!

Büyükşehir Belediyesi, Tarihi Yarımada'da trafik yükünü azaltmak için "akıllı otopark"ları hizmete soktu. Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek...

24 Ocak 2013, Perşembe / 17:46

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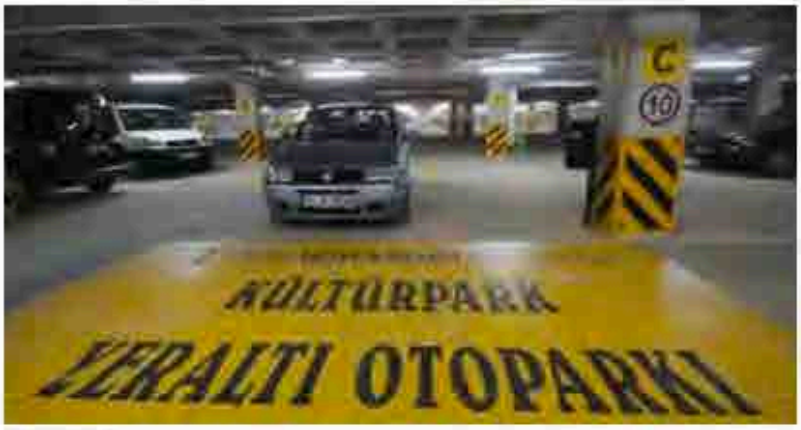
AA

Akıllı otopark dönemi başladı!

İstanbul Büyükşehir Belediyesi, Tarihi Yarımada'da trafik yükünü azaltmak için 'akıllı otopark'ları hizmete soktu. Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek. İstanbul Büyükşehir Belediyesi'nden yapılan açıklamaya göre, Tarihi Yarımada'da trafik yükünü azatlamak için 'akıllı otopark'ları devreye aldı.

AA | 24.OCAK.2013, 17:36

EKONOMİ



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Pilot olarak Tarihi Yarımada'da başlayan uygulama, zamanla genişletilecek.

Sömestrde umre ilgisi
24 OCAK 2013, 19:33
Kutsal topraklara, 2013 yılının ilk ayında gitmek için bugüne kadar 34 bin kişi seyahat acentelerine başvurdu. Yarı yıl tatili dönemi için ise rezervasyonlar aylar öncesi...

Altında son durum ne?
24 OCAK 2013, 19:54
Altın piyasasında 4 işlemde 1 milyon 807 bin 242 lira, 25 işlemde 29 milyon 739 bin 21,55 dolar ve 1 işlemde 922 bin 166,11 Euro işlem hacmi kaydedildi.Gümüş piyasasında ...

'Beyaz cennet'e 2 milyon kişi
24 OCAK 2013, 19:29
Karakan, gazetecilere yaptığı açıklamada, Pamukkale ve Karahayıt'ın yatak kapasitesinin 12 bin olduğunu, 2013 yılını yüzde 85'ten fazla doluluk oranıyla kapatmayı hedefle...

Böyle işadamı dost başına
25 OCAK 2013, 19:59
Yarın akşam kutsal topraklara hareket edecek olan işçiler, kendilerine böyle bir imkanı sunduğu için hayırsever iş adamı Bilal Şahin'e teşekkür etti. İşçiler, şunları ifa...

Dolar 1,77 TL
24 OCAK 2013, 19:38
Serbest piyasada gün sonu itibarıyla 1,77 TL'den alınan dolar 1,7705 TL'den satılırken, 2,3675

Appendix-9 Guidelines for TDM and Social Experiment

Guidelines for Traffic Demand Management (TDM)

& Social Experiment in Istanbul

May 2014

Istanbul Metropolitan Municipality

Table of Contents

1 TRAFFIC DEMAND MANAGEMENT (TDM) AND SOCIAL EXPERIMENTS

1.1 Structure of the Guidelines

These guidelines are prepared as one of output of the İSTDM project. The experience of social experiments through the project is expected to be summarized as guidelines and shared among relevant departments of IMM. Throughout the implementation process of the social experiment, three major activities were carried out to prepare these guidelines; 1) review results and clarify lessons learned from the social experiments for implementing TDM measures, 2) prepare the guidelines describing implementation procedures and activities of the TDM measures and 3) share the guidelines among entities and organizations of the relevant departments of IMM. Because the implementation of second social experiment, traffic cell, was postponed until 2014, the guidelines do not include the implementation procedure and schedule part, but planning and evaluation method of the social experiment.

These guidelines first give overall concepts of traffic demand management and social experiment in general, and then provide some examples of them in Japan. After that, in Chapter 1, TDM and social experiments in Istanbul is explored as an approach to solve urban traffic problems in Istanbul.

Following to Chapter 1, the detail of the 1st social experiment, Smart Parking System (SPS) is introduced in Chapter 2, which explains about the outline of the SPS, implementation procedures and tasks carried out by IMM and the evaluation survey results. Chapter 3 illustrates the implementation steps of traffic cell system, the 2nd social experiment, and the last chapter explores potential TDM measures and social experiments in Istanbul.

1.2 Traffic Demand Management

1.2.1 Definition and necessity of TDM

Istanbul Metropolitan Municipality, the largest metropolitan area in Turkey, encompasses nearly fourfold population of the capital, Ankara. Its population is expanding rapidly in conjunction with its economic development. In Istanbul, people can choose from varied transport modes, such as subway, tramway, BRT, ferry, public bus, and taxi. The transport demand has increased vividly for the last few decades because of soaring population and growing employment opportunities in the city. The expanding economic activities in Istanbul are also contributing to extensive changes on land-use and urban functions of the city.

The road network in Istanbul is limited; however, the number of vehicles is increasing. Sometimes, expanding the road network capacity is not possible both physically and

financially. Moreover, public transportation network development is a long process and it takes time. Istanbul will encounter heavier traffic congestion problems in the future, if necessary control policies are not taken. Therefore, the need for Traffic Demand Management (TDM) policy has surfaced in order to minimize wasted time in traffic, to provide transportation mode integration and to ensure smooth pedestrian mobility.

TDM covers various measures aimed at reducing traffic congestion and negative environmental impacts caused by transportation. Consequently, the implementation of studies, including the measures of TDM is crucial for the establishment of livable urban environments.

1.2.2 Aims and Objectives of TDM

（1） Objective

To establish livable and comfortable urban environment in the area.

（2） Aim

To realize the objectives through the implementation of TDM measures which are compatible with the historical and cultural uniqueness of the city. These objectives include the effective usage of existing transportation infrastructure, minimizing wasted time in traffic, establishing a planned approach to car parking infrastructure usage, providing the integration among transport modes and ensuring smooth pedestrian mobility.

1.2.3 Methods of TDM

TDM measures are indicated as follows: They are categorized in 4 groups and all main vehicle usage directly or decrease private car usage indirectly by encouraging the use of alternative transportation modes.

Table 1.2.1 TDM Measures

TDM Measures	a	b	c	d
1. Park and ride				
• Shifting private car users to public transportation		X		
• Decreasing congestion in area by providing transfer to high-capacity public transportation systems	X			
• Emission reduction by discouraging vehicle usage	X			
• Integration among transport modes and saving travel time	X			
2. Improving pedestrian and bicycle transportation				
• Supporting non-motorized transportation		X		
• Minimizing the damages on historical structures caused by motorized vehicles	X			
• Providing more comfortable transportation infrastructure for pedestrians			X	
3. Access guide for public transportation				
• Increasing public transportation usage		X		
• Providing easy access between routes and modes		X		
• Easily applicable system		X		
4. Incentive campaigns for public transportation and non-motorized transportation usage				

• Encouraging communities to use non-motorized transportation by informing about transportation investments	X			
5. Congestion pricing				
• Reducing vehicle traffic in central areas	X			
• Reducing pollution caused by vehicles	X			
• Increasing predictability of travel time			X	
• Decreasing delays and discontent			X	
• Transporting goods on time				X
• Decreasing fuel consumption				X
6. High-occupancy vehicle lanes (HOV)				
• Decreasing the number of vehicles by increasing car occupancy				
• Supporting public transportation investments with the earnings from low-occupancy vehicles				X
• Usage of HOV lanes by emergency vehicles				X
7. Car-free days				
• Providing more comfortable pedestrian access			X	
• Decreasing the number of vehicles in traffic and reducing emission rates correspondingly			X	
• Encouraging non-motorized transportation			X	
8. Prohibiting vehicles that cause high pollution				
• Disqualify vehicles over a specific age to decrease noise and emission pollutions				X
• Prevent possible vehicle malfunctions in traffic				X
• Encourage drivers to purchase low emission vehicles				X
9. Increasing the capacity of existing services				
• Saving area by constructing mechanical multi-storey parking lots			X	
• Decreasing waiting time and delays by valet parking services			X	
• Campaigns against private car usage			X	
• Supporting campaigns which are disincentive for private car usage and incentive for non-motorized and public transportation by brochures and advertizements			X	
10. Car sharing				
• Encouraging high occupancy private car usage to decrease traffic congestion				X
11. Decreasing road-side parking (on-street parking)				
• Effective usage of road capacity				X
• Decreasing pauses in traffic caused by on-street parking and improving traffic safety				X
• Establishing continuous traffic flow by diminishing traffic congestion				X
• Establishing car parking culture				X

Note: a: suppression of demand, b: modal shift, c: directing the demand and d: effective vehicle usage.

(a) Suppression of demand

- Implementing road pricing policy
- Regulation of car park management
- Providing remote access

(b) Modal Shift

- Encouraging public transportation usage
- Expansion of Park & Ride system.
- Establishing bicycle lanes or parking areas

- Enhancing the areas through Pedestrianization/Transit Mall[1] (closing some sections of the roads to vehicle traffic in designated hours or changing the usage)

(c) Directing the Demand

- Regulating Work-School hours
- Implementing flexible working hours
- Implementing Congestion pricing policy
- Utilizing traffic information system

(d) Effective Vehicle Usage

- Generalizing high-occupancy vehicle (HOV) lanes
- Encouraging shared car usage
- Effective usage of logistics services

1.2.4 Worldwide cases of TDM

There are many examples of TDM in the world.

(1) Promotion of Modal Shift

- Park & Ride System (Istanbul, Shanghai/China, Vientiane/Laos, Singapore)

  Car parks with connections to public transport allow private car users wishing to travel into city centers to park their car and transfer to a bus, railway system (metro, LRT or commuter rail), or carpool for the rest of their trip.

- Developed coordination (Bogota, Colombia)

  Providing coordination among modes -bus, train, ship and aircraft.

- Improving comfort level (Jakarta, Indonesia(2010))

  Providing better seats and cleaner vehicles.

- Reducing fares, discounts and more convenient fare payment methods (Paris, France)

  Using a smart card (RATP card) to access public transportation.

- Developed rider information and marketing programs (London and Paris)

  Providing the real-time information on transit vehicle arrival.

- Transit Oriented Development and Smart Growth (In many cities of Japan, Ulaanbaatar – Mongolia (2009), Manila - Philippines (2011), Hanoi - Vietnam (2007), Ho Chi Ming - Vietnam (2005))

  Providing more suitable land use models for transit transportation.

[1] Transit Mall: Limiting or totally prohibiting traffic and allowing only public transportation, bicycles, and pedestrians in designated street/s in a city

- Pedestrian and Bicycle access, integration of bicycle and transit transportation, improving the security for transit transportation users and pedestrians (Europe and Japan)
- Multi-modal Access Guides (Paris)

  Include maps, schedules, contact numbers and other information which direct users who want to reach to a particular destination using public transportation. Website of: http://www.ratp.fr provides guide for passengers in Pairs. User can find travel time and other information about transport system on this web site.
- Development of pedestrian transportation facilities (Ahmadabad – India (2009 - 2010), Madison city, USA, Europe)

  Madison's visionary plan for pedestrian transportation is adopted in September, 1997. The plan incorporates planning, designs, maintenance, and long-term goals and objectives. Madison was one of the first communities to adopt a separate plan for pedestrians.
- Developing pedestrian oriented land use and building design (Washington)

  Washington State Transportation Department adopted a design guide which integrates non-motorized planning into the state's overall transportation infrastructure program by incorporating walking and cycling design requirements into all appropriate projects.
- Public Bicycle Systems (Paris, La Rochelle/France, Copenhagen - Denmark)

  It is an automatic bicycle rental system which is designed to provide efficient mobility for short and utilitarian urban trips.

  The network of 20,000 specially designed bicycles distributed among 1450 stations is established throughout Paris. Vélos Jaunes (Yellow Bikes) is a free bike-sharing program and it is regarded today as one of the first truly successful bike sharing programs. In 1995, the Free City-Bike Program was implemented by the City of Copenhagen. One thousand specially designed free City-Bikes were stationed at 120 stands around the City at train and subway stations, parking lots and large housing blocks.
- Development of cycling facilities (Seoul - South Korea, Shanghai - China (2008), Bogota – Columbia, Portland – US)
- Integration of cycling and public transit (Many cities in Japan, Düsseldorf – Germany, France, Edmonton and Ontario – Canada)
- Taxi Service Improvement (TAXIBUS in the City of Rimouski Quebec – Canada)

  Increasing the number of taxis in an area; Increasing the quality of taxi vehicles; Universal Design of taxi vehicles, including accommodating people in wheelchairs and with large packages; Reducing fares through regulation, competition, increased efficiency, incentives or subsidies; Allowing shared taxi trips (more than one passenger) and Paratransit services; Providing taxi stands and direct telephone lines.

TAXIBUS operates Monday to Friday, serving 300 stops by predetermined schedules. Passengers, who pay $2.40 per ride or $70.55 per month, must reserve two hours ahead of time by phone.

- Financial Incentives for Commuters (Vancouver Airport – Canada, UK, Many cities in Japan)

  It describes various financial incentives that can be used to encourage use of more efficient commute modes. These include parking cash out, travel allowance, transit benefits, and rideshare benefits.

- Transit-oriented development (TOD) and Smart growth (Many cities in Japan, Ulan Bator - Mongolia (2009), Manila - Philippines (2011), Hanoi - Viet Nam (2007), Ho Chi Minh - Viet Nam (2005), Curitiba – Brazil, Guatemala City –Guatemala, Vancouver, Montreal and Toronto – Canada, San Francisco - US)

- Promotional campaigns for the use of public transit and non-motorized transport (NMT) (Phnom Penh – Cambodia, Hanoi - Viet Nam, Ho Chi Minh - Viet Nam, San Francisco – US, Thessaloniki – Greek)

(2) Demand Suppression

- Congestion pricing (time-variable) (London, Stockholm)

  It is intended to shift some vehicle traffic to other routes, times and modes with a fee that is higher under congested conditions than uncongested conditions.

  The standard fee for private cars is £5 per day in weekdays within a 20 km² detected zone in the center of London. The city of Stockholm, Sweden, began charging vehicles entering the inner city area on weekdays between 6:30 a.m. and 6:30 p.m. US$1.27 to US$2.54 per trip, with a maximum daily charge US$8.00.

- Cordon fees (Trondheim—Norway)

  They are the fees charged for driving in a particular area. In Trondheim, a “toll ring” that surrounds the city’s downtown area is implemented. The toll ring has 12 toll stations and uses a total of 35 lanes.

- High-Occupancy Vehicle Lanes (HOV) (San Diego, California)

  A high-occupant-vehicle lane accommodates a limited number of lower-occupant vehicles for a fee.

  Tolls ranging from 50 cents to $4 per one-way trip under regular conditions and sometimes as high as $8 in San Diego. In California, the tolls ranging from $0.75 to $3.50 per trip, depending on level of congestion.

- Mileage-based Registration Fees (Singapore)

  Vehicle licensing and registration fees are prorated by vehicle mileage.

- Mileage-based Vehicle Purchase Taxes (Greenberg)

  Purchase taxes could be converted to distance-based taxes. In Greenberg, purchase taxes average about $1,200 per vehicle.

- Mileage-Based Emission Fees (Germany)

Mileage-based emission fees that reflect each vehicle's emission rate would give motorists with higher polluting vehicles a greater incentive to reduce their mileage, and conversely, give motorists who must drive high mileage an incentive to choose less polluting vehicles. Vehicles over 12 tons would be required to pay Euros 0.14-0.19 (0.12-0.16 US dollars) per kilometer, with variation depending on exhaust emissions and axles.

- Weight-Distance Fees (Switzerland)

  Weight-distance fees are a mileage-based road use charge that increases with vehicle weight. The Heavy Vehicle Fee charges heavy trucks (over 3.5 tones) based on their gross weight, kilometers driven and emissions.

- Pay-As-You-Drive insurance (Netherlands)

  Prorates premiums by mileage so vehicle insurance becomes a variable cost. It charges vehicles based on its environmental characteristics, and the time and place of each journey, with higher rates under congested conditions.

- Environment taxes (France)

  Motorist must pay the taxes by emission the carbon in the environment. The fee is 17 Euro/ton Carbone.

- Time of day car ban (Vietnam)

  It includes the taxi ban on some street in rush hour and truck ban in center area in office hours.

- Car free day (Europe, Bogota – Columbia)

  It encourages motorists to give up their car for a day. Ten local authorities in Britain, including five London boroughs (Camden, Lambeth, Merton, Southwark and Sutton) are participating in European Car Free Day.

- Ban on heavy polluting vehicles (Shanghai (2008))

- Ban on trucks (Hanoi - Vietnam, Dubai – UAE, Abu Dhabi – UAE)

  Ban on trucks by hours, by load weight and by area.

- Restrictions on automobile users regarding particular areas or hours (Manila – Philippines, Jakarta – Indonesia, Netherlands (2011), Surabaya - Indonesia)

- Restrictions on car ownerships (Quota system) (Shanghai - China (2008), Beijing – China, Singapore, Bogota - Columbia)

- Telecommuting (Los Angeles - First Interstate Bank)

  Allowing employees to work from home or a non-office location one or more days a week. The objectives of the program include increased productivity and flexibility for employees.

- Video-conferencing; Distance Learning (North American, Europe, Asia developed countries)

  The use of live video connections as a substitute for physical meetings.

- Internet-shopping and Errands (US, Many countries in Europe, Japan)

  Telecommunications is increasingly used for shopping, banking and other types of errands.

- Electronic Government (Arizona - State of Arizona Telecommuting Program, North American, Europe, Asia developed countries)

  Telecommunications by government agencies to provide services that would otherwise require visiting a government office. Arizona state agencies have allowed telecommuting since a pilot project was established in 1989. The program includes policies and information materials to promote telecommuting within all state agencies.

- Share Parking (San Francisco)

  Sharing parking spaces typically allows 20-40% more users compared with assigning each space to an individual motorist.

- Parking Maximums (Ulaanbaatar (2009), Shanghai (2008))

  Limit on the maximum amount of parking capacity allowed at particular sites.

- Increase Capacity of Existing Facilities (California)

  Increase parking supply by using otherwise wasted space, smaller stalls, car stackers and valet parking.

- Price on-street parking in residential neighborhoods (Aspen, Colorado, San Francisco)

  Allow motorists to lease on-street parking spaces for example, let residents and businesses lease the parking spaces in front of their homes or shops, which they could use themselves, reserve for their visitors and customers, or rent to other motorists.

- Campaigns to refrain from driving automobiles (Beijing - China (2008-2009), Brussels - Belgium (2009-2010), Bogota – Columbia, Vancouver, Montreal - Canada)

(3) Demand Dispersal

- Staggered Shifts (Hanoi- Vietnam)

  Shifts are staggered to reduce the number of employees arriving and leaving a worksite at one time. This has a similar effect on traffic as flextime, but does not give individual employees as much control over their schedules.

- Flextime (TransAmerica Financial Corporation - Los Angeles - US)

  Flextime means that employees should be allowed to be free somehow in their daily work schedules. Employees are allowed to start at any time between 7:00 and 9:00 a.m., and depart between 3:15 and 5:45 p.m.

- Compressed Workweek (CWW) (Southern California Association of Governments -California - US)

Employees work fewer days but longer hours, such as four 10-hour days each week (4/40), or 9-hour days with one day off every two weeks (9/80). Employees work 9-hour days and get every other Friday off.

- Intelligent traffic information system (ITS) (Hanoi - Viet Nam (2011 - 2012), Singapore, Kuala Lumpur – Malaysia, Bangkok – Thailand, Seoul - South Korea, Japan, Medellin – Columbia)
- Roadside infrastructure for collecting traffic information (communication network, CCTV, vehicle detectors, etc.) is developed by using Variable Message Information Boards (VMS).

(4) Efficient Use of Road Space

- High-occupancy vehicles lanes (HOV) (Jakarta – Indonesia, Bangkok – Thailand, Manila)

  Lanes give priority to High Occupant Vehicles including bus, tramway, carpools, vanpools.

- Intersection controls that give priority to HOVs (Paris, France)

  Other vehicles must wait in line to enter a highway or intersection, but HOVs enter directly. Priority is given to Tramway and BHNS system.

- Carpooling and Vanpooling (Los Angeles, Washington, San Francisco – US)

  The sharing of car journeys so that more than one person travels in a car.

- Car sharing (Paris, France)

  Car sharing refers to automobile rental services intended to substitute for private vehicle ownership. The subscribers in Paris can buy 2,000 electric-powered vehicles without booking and then leave anywhere in the city.

- Encourage shippers to use modes with lower social costs (Canada)

  Such as rail and water transport rather than truck for longer-distance shipping.

- Improve scheduling and routing to reduce freight vehicle mileage and increase load factors (UK Sustainable Freight Policy)
- Traffic calming (humps, median islands,) (The city of West Palm Beach, Florida, Seattle, Washington)

  Refers to various design features and strategies intended to reduce vehicle traffic speeds and volumes on a particular roadway.

- Restrictions on para-transit vehicles (Hanoi - Viet Nam, Dhaka - Bangladesh)

  Restrictions on rickshaws, Dhaka.

- Reduction of the on-street parking (Hanoi - Viet Nam)

  To increase the road space in use. No car parking on the almost streets of ancient quarters.

- Coordinate traffic signals to improve traffic flow (Hanoi - Viet Nam)

1.2.5 Japanese Case of TDM

TDM was introduced to Japan around the end of 1980s by academic experts. TDM measures overseas were brought in as preceding practices and gradually incorporated in various road construction and maintenance and improvement plans. TDM measures were initially carried out through a trial and error process. They were mostly tested first employing a social experiment scheme, which currently becomes a common practice to test TDM measures. Data in 2003 from the research institute of the MLIT (Ministry of Land, Infrastructure, Transport and Tourism) shows more than 700 cases of TDM measures were reported in the past five years.

TDM is a package of various demand-side measures to reduce and/or alleviate traffic congestions through changing travel time of day, route deviation, mode shift, effective use of cars and regulating trip generation, i.e. land-use control, for example.

According to the collected data, nearly 70% of measures are categorized under “mode shift,” followed by the promotion for route deviation. Although more than 70% of measures, taken for the purpose of congestion alleviation, were evaluated to some extent, not more than 30% of them were evaluated as effective measure to achieve the objective, traffic congestion alleviation.

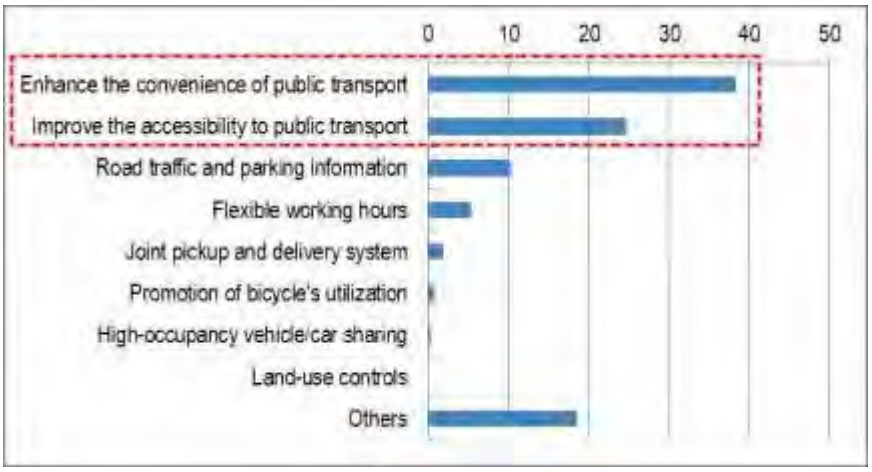

Figure 1.2.1 TDM Measures in Japan

The following TDM measures are introduced by the MLIT as typical TDM measures.

(1) Staggered office hours

Staggered commuting has been prevailing among local government public officers and private companies in Hiroshima city. After the staggered office hours measure was undertaken, traffic volume during peak hours became leveling, and the maximum traffic congestion distance improved from 5.8 km to 3km in three years.

(2) Route deviation

In Hamamatsu, the local government conducted an experiment by asking commuters to change their commuting routes to understand causes of the traffic congestion and to alleviate it. The result of the experiment was quite promising. So the local government decided to carry on a full-scale operation.

Congestion time period..... 90 minutes to 40 minutes
Maximum congestion distance ..... 810 meters to 730 meters
Driving time ..... 15 minutes to 8 minutes
Bus travel time ..... 14 minutes to 5 minutes

(3) Cooperative pickup and delivery

“Tenjin cooperative logistic corporation,” consisting of 35 delivery companies, was founded in Tenjin district in Fukuoka city to collectively pickup and deliver goods in that district. By 2003, 49 designated parking spaces were allocated by the city government for disposal of goods in the district. The result of this measure is not only benefited to alleviate traffic congestion, but also benefit to delivery companies by saving truck operation expenses. Because of this measure;

- the number of delivery truck reduced by 65 %;
- travel distance in the district reduced by 87%; and
- total parking time reduced by 17%.

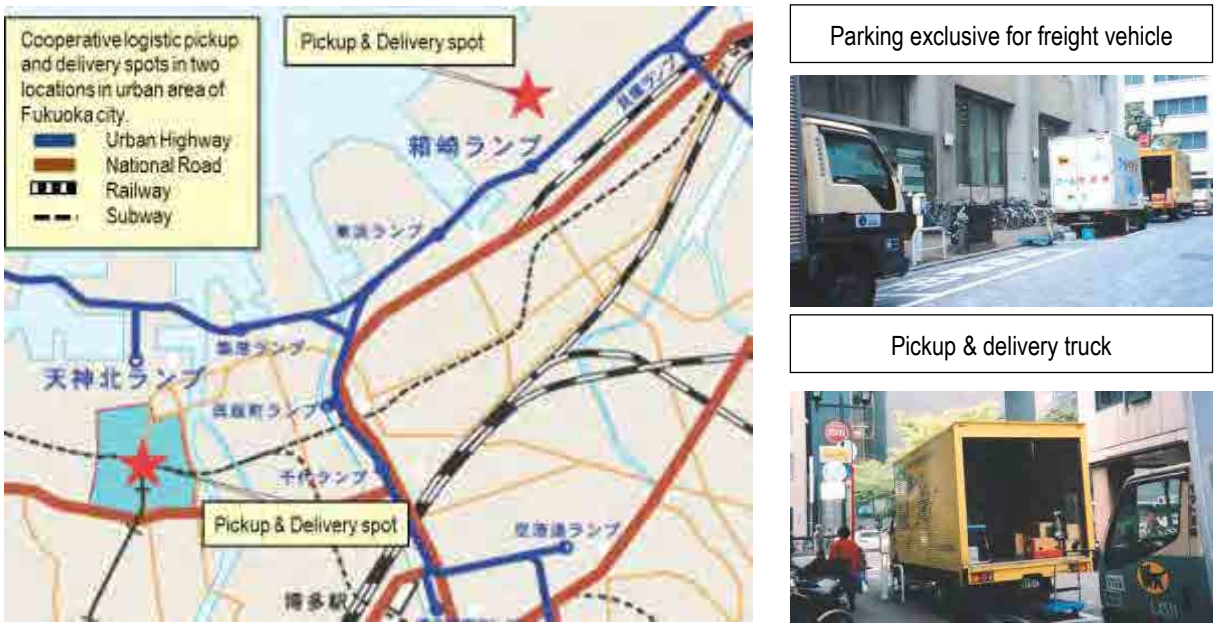

Figure 1.2.2 Cooperative Pickup and Delivery in Fukuoka City

(4) Bus location information system

Hiroshima city announces tram and bus location information to public transport users, in order to promote utilization of public transport. Public transport service provider puts positional information device and communications equipment on the vehicle of the super

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low floor streetcar “green mover” and collects the location information in real time. The bus location system provides the position of the vehicle and information of estimated arrival time through the Internet or a mobile phone using this information.

Super low flow street car “Green Mover”
Because there is no difference in level on platform and the street car, it is more passenger-friendly, in particular, for elderlies and wheelchair users.

Photo 1.2.1 Super Low Floor Street Car “Green Mover”

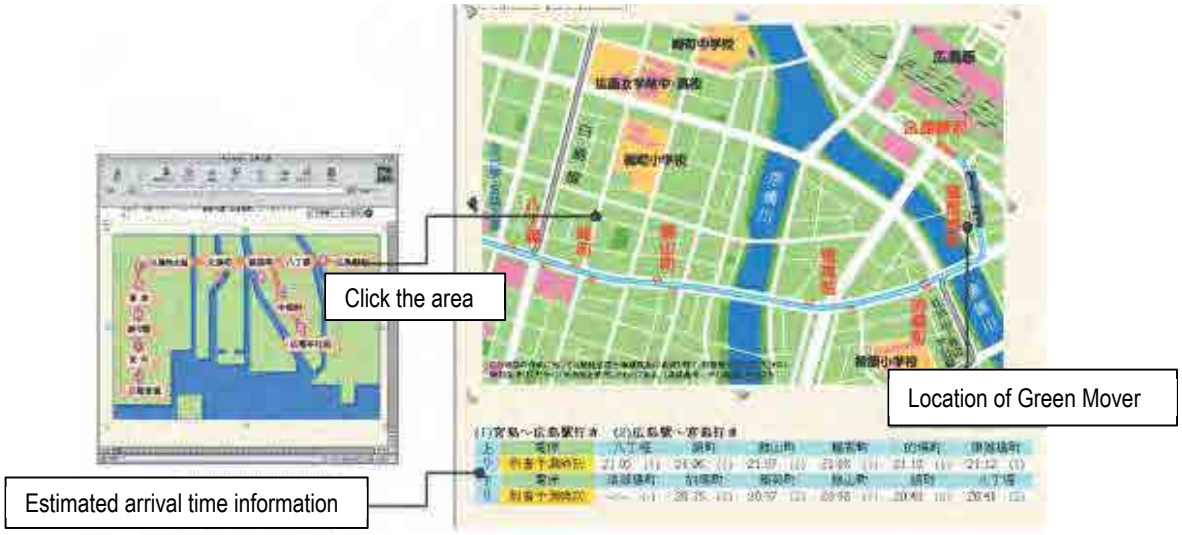

Figure 1.2.3 Bus Location Information System

Kamiyacho in the Hiroshima underground shopping center is the access point of the major public transportation in the city. In accordance with the underground shopping center development, Mobility Center was opened in underground shopping center. It provides real-time operation information; bus, ferry, tram, such as parking information, etc. in the heart of the city.

Photo 1.2.2 i Mobility Center

(5) Mode shift (Park & Ride)

Osaka prefecture government, railway companies and supermarkets have collaborated to carry out a park and ride social experiment in Osaka. Parking facilities of five supermarkets near railway stations were open to railway commuters with nominal

charge. The social experiment aimed at making commuters use their car to the city center, park their cars at supermarkets' parking lots nearby the railway stations and use railway to commute to the city center. Five supermarkets, located within 400 meter radius from the railway stations, with more than 200 parking lot capacity cooperated to let the commuters use parking area.

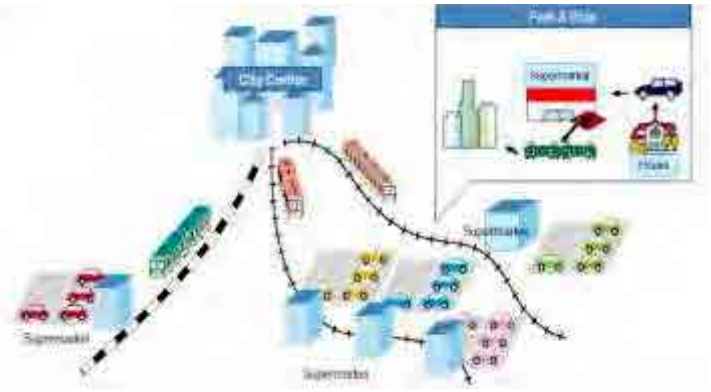

Photo: Parking nearby railway station

Figure 1.2.4 Park and Ride Social Experiment in Osaka Prefecture

(6) Promotion of bus and bicycle in the CBD in Hiroshima

Introduction of express bus services connecting suburban new towns and CBD, and a collaborating measure of rental bicycle in the urban central area in Hiroshima city.

100 bicycles are pooled at five rental bicycle ports. Users can ride and drop-off bicycles anywhere at five ports.

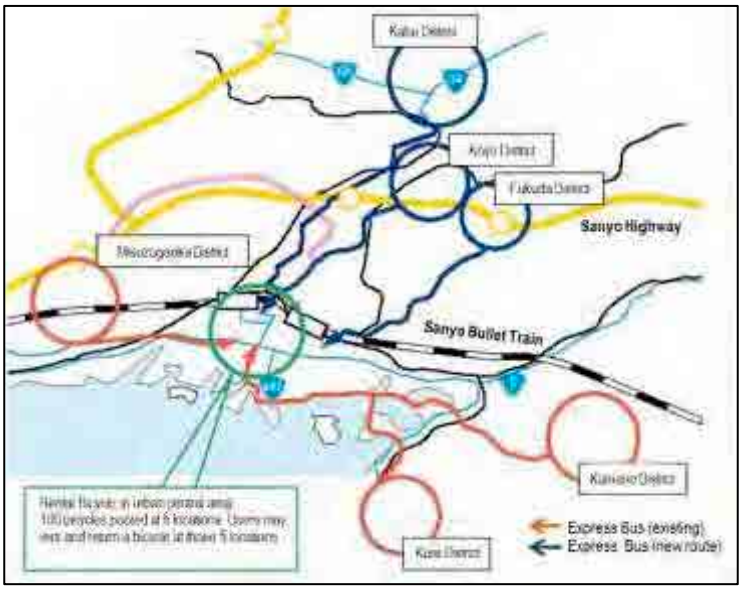

Figure 1.2.5 Express Bus Service and Bicycle Pool in the CBD in Hiroshima

(7) Promotion of utilization of bus and modification of bus lane

A variety of measures to promote bus use is running in cities to reduce traffic congestion and the convenience of vulnerable road users, and to reduce the environmental impact.

In Sapporo city, while bus lanes have been installed since 1975, color pavement lane for bus lane was introduced recently in 1993. As a result, general vehicle mix rate, vehicles pass through bus lanes, decreased 24 points in national road route 5 and 8 points in route 12. Besides that, the police partially introduced PTPS (public transport priority

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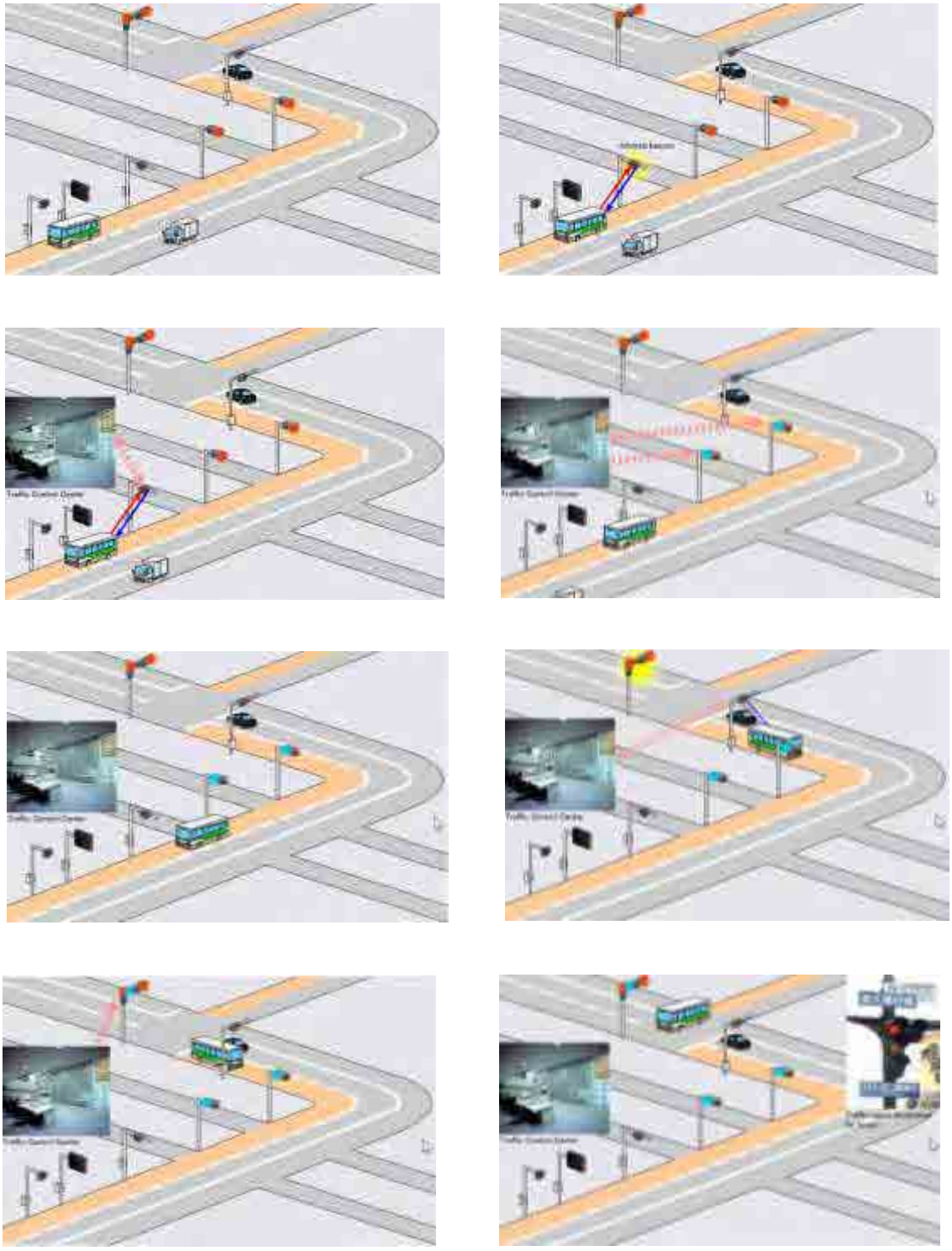
systems) and MOCS (mobile operation control systems) to the city. After the installation of such measures, an average travel time of buses was shorten by 1.5 minutes and bus passengers increased by 12.7%.

Figures in the following page show the PTPS mechanism. After a detector recognizes a bus being approaching, it sends a signal to a traffic control center, and then the traffic control center automatically sends signals to traffic lights ahead to let the bus pass through intersections without any interruption. Where the bus turns right, the center also control a traffic light to stop vehicles on the right lane to let the bus to turn right without any interruption. PTPS reduces waiting time at intersections and ensure more reliable on-time bus operation, as well as ensure bus safety when it turns right.

In Matsue city, the rate of bus punctuality, bus arrival at bus stops on time increased from 23% to 63%, driving time decreased by 15%, while Osaka prefecture experienced the number of customers increased by 5%. The total length of PTPS in service was about 546 km in 2006 and 744 km in 2010, 36% increase in four years.

Nagaoka city introduced “Bus-shopping coupon” to promote bus use and regenerate a shopping promenade. If passengers spend more than USD20 at the shopping promenade, they can claim to receive a coupon, which can be exchanged to a one way bus ticket. After this measure was implemented, new demand for bus usage and the number of customers have increased by 12%.

Figure 1.2.6 Bus-shopping Coupon



Source: http://www.utms.or.jp/english/system/ptps.html

Figure 1.2.7 PTPS Mechanism

(8) Promotion of bicycle use

The City of Kanazawa promotes "Cycle & Ride" as a part of its Omnibus Town Plan. "Cycle & Ride" encourages citizens to use transit stations or bus stops by bicycle and catch a train or a bus there to go to final destination, i.e. schools, offices or shopping

areas. It helps reduce automobile inflow to the downtown area and promotes the use of the public transport. Bicycle parking lots are provided at all the transit stations and at key bus stops in the downtown and suburban area. The city government plans to increase from one to three parking lots every year. There are more than 50 parking spaces nearby railway stations and bus stops for cycle and ride in Kanazawa city.

Source: http://blog-imgs-47-origin.fc2.com/h/k/b/hkbusst/hw-matsuyama_ic_03.jpg
http://www.geocities.jp/lrt_city/DSC_2575.jpg

Photo 1.2.3 Bicycle Pool at Bus Stops

(9) Strategic toll setting for higher utilization of expressway

Many existing toll roads in rural areas are not used effectively; in particular, in cases arterial roads parallel to the toll roads are congested. It is suggested then that better and more effective use of expressway would be achieved through flexible and dynamic toll setting for the purpose of alleviating the congestion of paralleled arterial roads.

Figure 1.2.8 shows a case of social experiment in Joban Expressway and in Hitachi city. It aimed at mitigating congestion on National Highway No.6 in Hitachi city.

Figure 1.2.8 Expressway in Hitachi City

Discount fare, about 50% discount, was given to vehicles using three interchanges to avoid passing the center of city using National Highway No. 6. The results of the experiment show positive impacts; an average daily traffic volume on National Highway No.6 and connecting roads fell by 4%, a spot traffic volume from 91,000 vehicles/day to 87,300 vehicles/day, buses' travel time in the morning reduced by 18 minutes and congestion loss on major roads in the city was reduced as shown in Figure XX.

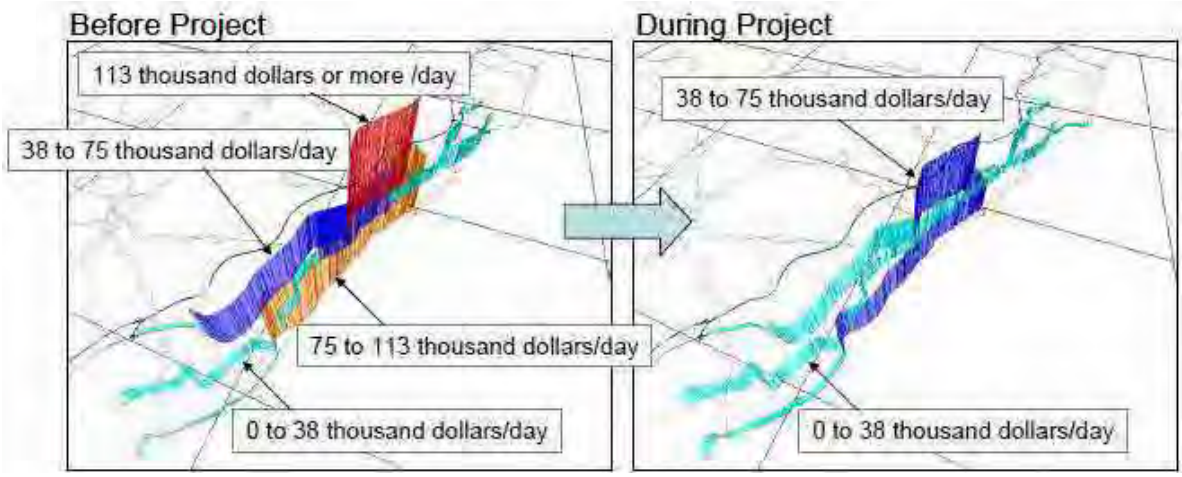


Figure 1.2.9 Congestion Loss (Before and After the Project)

1.3 Social Experiments

1.3.1 Definition and necessity of social experiment

The implementation of a transportation-related project requires a high investment cost. Therefore, it is necessary to apply a small-scale pilot project (social experiment) to determine the effectiveness of the full-scale project. Social experiment is a small-scale partial work which is implemented in a designated area within a limited time. Social experiment contains selection, planning, implementation and evaluation stages of the project. If the project is successful, the principles of TDM will be applied at full scale. Moreover, if any problem is detected in the project, the structure of the social experiment will be changed and evaluated again. If it is unsuccessful, the project will be cancelled.

1.3.2 Aims and Objectives of Social Experiment

（1） Objective

To implement social experiments of investments in transportation demand management projects which aim at creating a more livable urban environment, decreasing motorized car traffic, using smart transportation systems, improving public transportation infrastructure, shifting traffic demand from private car to public transportation, and increasing mobility and accessibility.

（2） Aim

To establish a sustainable transportation system that will meet the travel demand of the residents. This will require the implementation of social experiments of high cost transportation demand management projects, which are consistent with Istanbul's land use, demographic structure, history and cultural identity, to measure the effectiveness of the project and to implement the project in a larger scale, if the results are positive.

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1.3.3 Implementation Process of Social Experiment

The duration of social experiment implementation on the site is approximately one to three months. The stages of social experiment preparation studies are indicated below:

(i) Determining the current situation

(ii) Selecting social experiment projects

(iii) Selecting social experiment target area.

(iv) Estimating the cost and preparing the draft plan

(v) Establishing the 1st Social Experiment Committee (composed of representatives from related institutions, academicians and public participation)

(vi) Preparing the implementation plan

(vii) Preparing the cost sheet and implementation calendar

(viii) Preparing a detailed draft of the implementation plan

(ix) Establishing the 2nd Social Experiment Committee

(x) Getting necessary approvals from UKOME/UTK etc.

(xi) Working on pre-implementation activities

(xii) Preparing the equipment and coordinating with stakeholders

(xiii) Gathering necessary data

(xiv) Establishing the 3rd Social Experiment Committee

(xv) Conducting campaigns and implementing social experiment for public information

(xvi) Conducting observation and evaluations

(xvii) Establishing the 4th Social Experiment Committee

(xviii) Announcing the experiment results and implementation report

1.3.4 Implementation Methods of Social Experiment

The work plan of organizing social experiment committee conferences is explained below:

Table 1.3.1 The Work Plan for Social Experiment Council Meetings

Meeting	Schedule	Aim
1st Conference	After identifying social experiment candidate projects	• Share common understanding or reconfirm concepts on TDM and social experiment. • Explain simple implementation plans of social experiment candidate projects. • Clarify selection method and evaluation criteria of the candidate projects. • Receive comments and ideas for evaluating the candidate projects and select projects to be actually conducted as social experiments.
2nd Conference	After drafting social experiment implementation plans	• Explain drafted implementation plans of the selected social experiment projects. • Clarify evaluation criteria and necessary data to evaluate the implementation of the social experiment project. • Receive comments and ideas for finalizing the implementation plans.
3rd Conference	Prior to actually undertaking the social experiment	• Report finalized implementation plans of the selected social experiment projects. • Confirm monitoring and evaluation methods of the social experiments. • Request for cooperation and understanding among stakeholders.
4th Conference	After evaluation of social experiments	• Report evaluation results of the projects and lessons learned from implementing the social experiments. • Explain outline of future activities to be undertaken based on the social experiments. • Receive comments and ideas on the evaluation results and future activities.

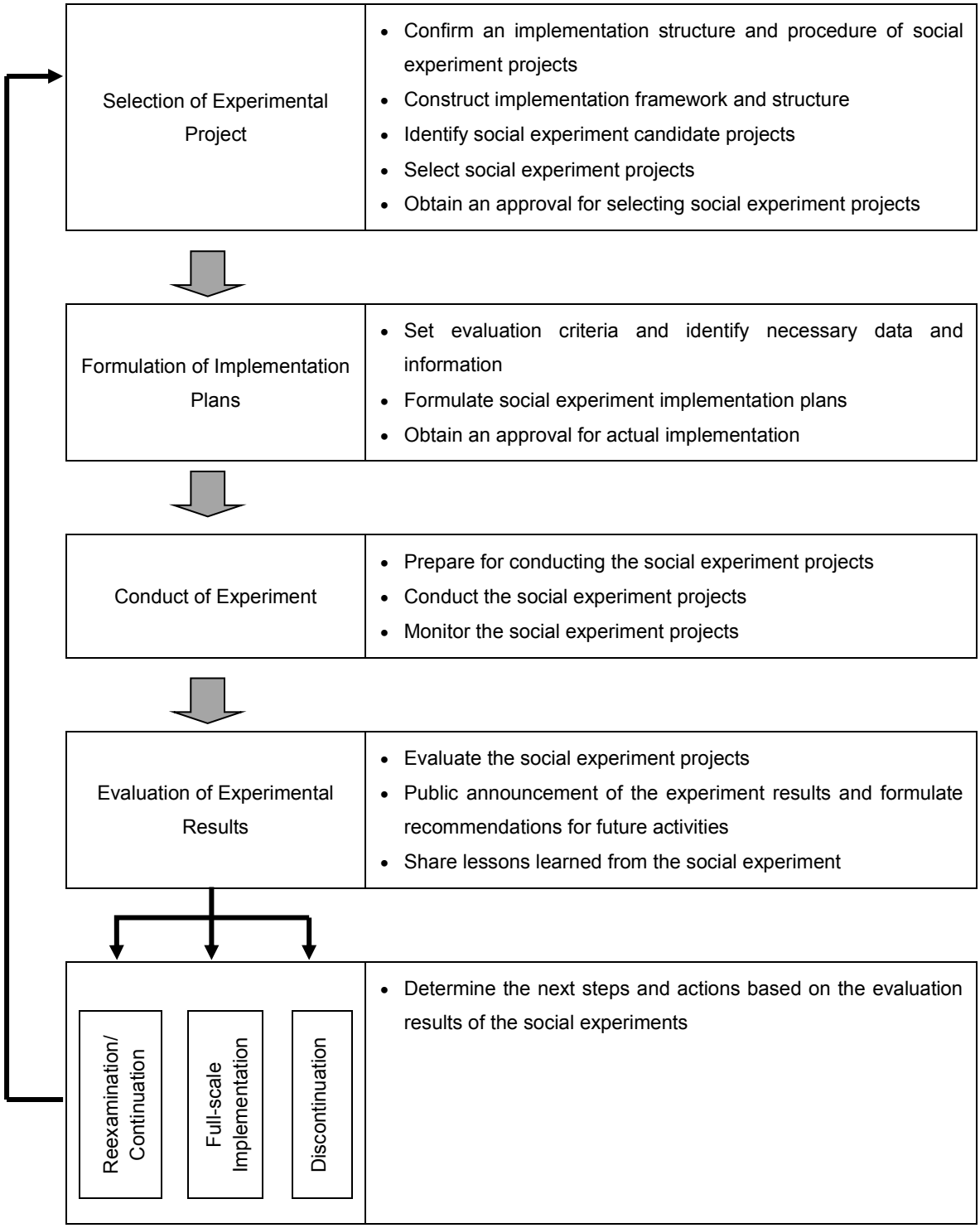

Figure 1.3.1 Implementation Flow of Social Experiments

1.3.5 Japanese Cases of Social Experiment

There are plenty of social experiment cases in Japan about pedestrianization, signalization control, parking lot management, regulation of sightseeing bus routes, traffic regulation, car park information system, storage of goods, bicycle transportation, smart transportation systems, regulation of local and private buses, park & ride system and regulation of working hours.

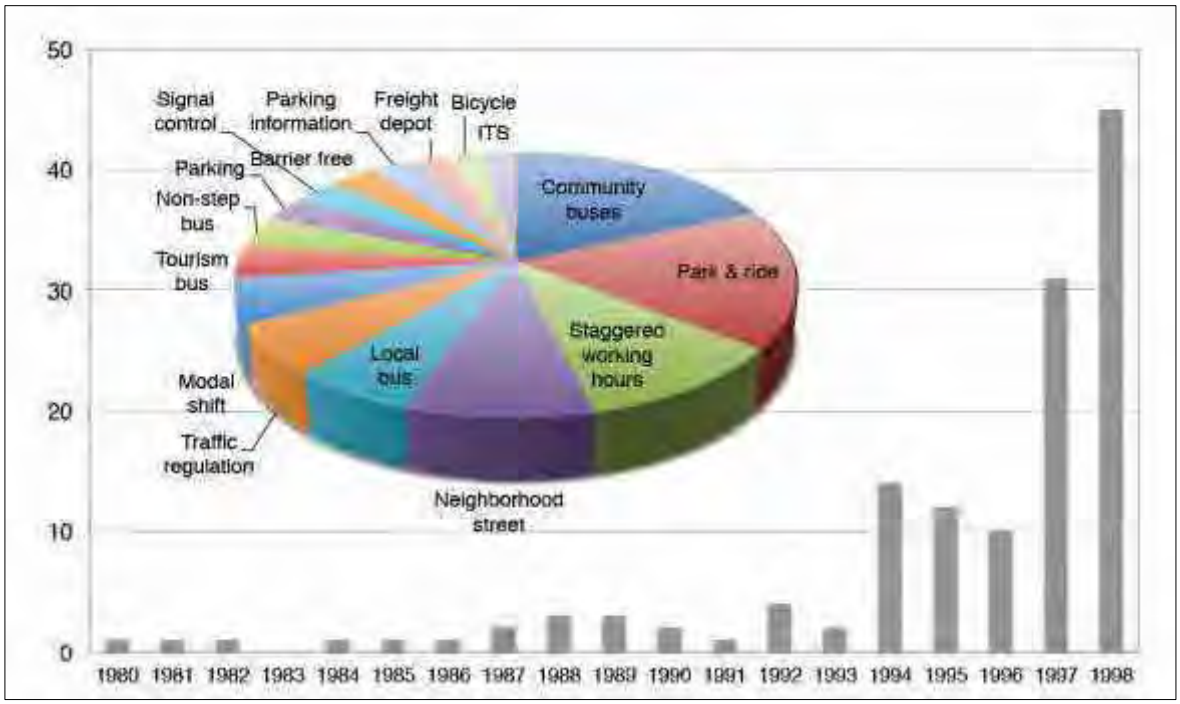

Figure 1.3.2 Social Experiment Studies in Japan

(1) Social Experiment Examples

a. Mall Introduction for town revitalization at Naoetsu (Joetsu City, Niigata)

Background

- The Project Area has lost vitality in the motorized Society.
- A significant reduction of Passengers of Naoetsu Railway Station is envisaged by opening of “Hokuriku Shinkansen (Bullet Train)”.
- The project Road is a busy main street but with insufficient width to secure safety of pedestrians and bicycle passengers.

Project

Enforcement of one-way system and installation of bicycle lane and parking space in order to secure safety of pedestrians and cyclists, as well as to create event spaces for town revitalization.

b. Walking Course in World Heritage, Kohyasan (Kohya Town, Wakayama)

Background

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- Kohya is a model town of revitalization by tourism, attracting many tourists due to designation as a World Heritage.
- The central area has lost energy and then population, mainly because of policies trying to cope with motorization.
- Housing stocks in the town center have been sprawling, mainly by the young generation.

Project

Social experiment tries to introduce a transit mall and a shuttle bus service together with fringe parking and restriction of car use, with the purpose of revitalization and creation of event spaces.

c. Human Friendly town development to meet past and future (Shiwa Town, Iwate)

Background

- The project area has been developing roads pedestrians because of the area assigned for vehicles, spaces for pedestrians are insufficient.
- Pedestrians cannot walk safely, without enough walking spaces.

Project

The central shopping street is narrow with no pedestrian spaces and it is planned to reduce carriageway width and install pedestrian walks, restricting large vehicles except buses and installation of humps to control running speed.

d. Town Development focusing Pedestrian Safety (Kamagaya City, Chiba)

Background

- The project area has been developing roads pedestrians
- Especially during rush hours, mixed traffic of cars, bicycles and pedestrians are forced to move in dangerous situations.
- Consequently, traffic accidents are prone in the area.

Project

In the accident prone area, two different shaped humps and a narrowed section were installed to secure residents' safety.

e. Transit Mall on International Street (Naha City, Okinawa)

Background

- The mid-town area has been losing a centering force due to the progress of motorization, moving of houses and shops to the suburbs.
- The project area is suffering from chronic traffic congestion.
- Planning a full mall and a transit mall in the end, some new transport measures are needed to connect the area with a monorail service recently to open.

Project

To test a possibility of permanent implementation of transit mall, a social experiment is planned to enforce a whole day mall in a busy street with congestion.

f. Wide-Area TDM by Package Approach with participation of Enterprises (Osaka City & Higashi Osaka City, Osaka)

Background

- On the road connecting the two areas, more than 55% of vehicle traffic is for business purpose.
- By converting such traffic with business purposes to public transport, mitigation of traffic congestion and environmental improvement are planned.

Project

To encourage the business trip makers to use public transport instead of using a private car, it is planned to issue a "TDM" ticket available for railways, buses, park and ride, parking of cars and bicycles and rent-a-cycle.

g. Demand Bus System & Door-to-door Bus Operation by IT(Toyota City, Aichi)

Background

- No public transport area has been expanding in the city and the "transport poor" such as the aged and non-car users feeling inconvenience are rapidly increasing.
- A new bus service was introduced but people feel that its service level is not enough high and want to know their time to wait for bus arrival.

Project

Bus stops of "City Center Bus" are installed at the front gate of large public facilities, hospitals and shops and a simplified demand-bus system is introduced at bus stops to meet passengers' needs.

h. Safe Environment for Bicycle by Road Space Readjustment (Setagaya Wd. Tokyo)

Background

- Frequent accidents occur by involving pedestrians and cyclists.
- Most roads in the area are too narrow to newly install spaces for cyclists.
- Safer environment is needed for pedestrians and cyclists by utilizing existing road spaces.

Project

By making an efficient use of narrow road spaces, a cycle lane is installed and one-way traffic of bicycles is encouraged.

i. Bicycle Lane Experiment in the Center of Green City (Sendai City, Miyagi)

Background

- People are becoming conscious of convenience of bicycles in the urban area and bicycles are expected to play more important role.
- On the other hand, accidents of bicycles have been increasing.
- Abandoned bicycles are increasing without stop and causes environmental problems and hindrance of urban functions.
- A clear vision should be established on bicycles in urban area, taking opportunity of subway opening.

Project

On the overcrowded sidewalks with pedestrians, pavement markings to separate bicycles and pedestrians were experimented, and bicycle lanes were installed on the small streets in the bicycle peak hours.

j. Social Experiment for a Bicycle-Running Community Development through PPP(Public

Private Partnership) in Itabashi and Toshima Wards (Itabashi Wd. and Toshima Wd., Tokyo)

Background

- This area is closely connected with the sub-center through the railway and road network, and many bicycles are conveniently utilized.
- While the bicycle running environment is being improved, construction is still insufficient and illegally parked bicycles are becoming an object of public concern.
- It aims at developing an overall bicycle-running community through PPP.

Project

In each ward, bicycle lanes were created by reducing 3 car lanes to 2 lanes on the roadway, or by separating bicycles and pedestrians with white markings on the pavement.

k. Three Trials to Promote “Eco-Takamatsu Starting with Bicycles” (Takamatsu City, Kagawa)

Background

- This city has an environment with a great utility of bicycles, and the bicycle ownership ratio is much higher than the national average.
- It is ranked as the worst in the number of bicycle accidents; hence, it is necessary to secure safe and comfortable space for pedestrians and bicycles and to enforce the bicycle running rules as well as to enhance the manners.

Project

Bicycle lanes were created by reducing the number of car lanes on the arterial road, bicycle running lanes were marked in the shopping arcade, and three rental bicycle ports were operated in the city.

l. Social Experiment for Logistic Community Development in Hiroshima (Hiroshima City, Hiroshima)

Background

- Due to the partial amendment of the Road Traffic Act, the control over on-street parking has been tightened.
- Though some measures are taken for efficient goods distribution partially in the central area, they are not sufficient yet.
- To cope with this situation, a “social experiment” was made to study the countermeasures on the initiative of the relevant agencies.

Project

In the target area, reduction of goods distributing trucks was tried by providing common goods disposal facilities on/off the streets, and its effect was examined.

m. Shibuya Smart Parking Social Experiment 2002 – Locally Integrated IT Car Navigation Experiment (Shibuya Wd., Tokyo)

Background

- In the conventional parking information/guidance system, necessary information may not have been provided for users.
- By registering users’ information beforehand, users were guided to the most appropriate parking area through the car navigation function, aiming at reducing on-street congestion and realizing smoother road traffic.

Project

Parking guidance by utilizing car navigation system and parking occupancy information system and efficient use of parking area through collaboration of the parking operators and local shopping streets were examined.

n. Combined Experiment of Terminal Logistic Measures and Parking Management in Shibuya District(Shibuya Wd., Tokyo)

Background

- Illegal on-street parking in the city reduces the traffic capacity and menaces the safety, greatly influencing occurrence of traffic accidents.
- As most vehicles parked on the streets in the special district of Tokyo are illegal, measures against on-street parking vehicles need to be promoted in order to enhance the road traffic safety.

Project

Suspension of metered parking, provision of on/off-street common goods disposal facilities by utilizing the existing parking facilities, guidance of parking vehicles to the parking area, and short-term free parking measures were implemented in order to remove illegally parked vehicles and goods distributing vehicles, and its effect was examined.

o. Advanced Social Experiment on Provision of Parking Information, etc. in the IT Society (Nagoya City, Aichi)

Background

- Precise parking guidance is important to reduce traffic congestion, and parking guidance through car navigation is currently being realized.
- Detailed parking information is difficult to be utilized efficiently because it is managed separately by the car navigation providers, etc.
- Automatic provision system of parking information which is suitable to each user's preference will be realized through car navigation with communication function, etc.

Project

Effects of guidance to the most appropriate parking facilities through car navigation with communication function in order to reduce on-street parking vehicles and queues waiting to enter parking facilities in the central area, as well as provision of parking availability information for the handicapped and the reservation system were examined.

p. Experiment on Verification of TDM by Enhancing the Transportation Access around Niigata Stadium (Niigata Pref., etc.)

Background

- When games were held right after completion of the stadium, the shuttle bus transportation did not function well and traffic congestion around the stadium occurred. So, it became necessary to develop a smooth transportation system for the spectators of the game.

Project

When games were held at Niigata Stadium, smooth traffic around the stadium was attempted by implementing park & ride, operation of one-coin shuttle buses, information sharing system among the relevant agencies.

q. Experiment on Verification of TDM in Kawanishi City and Inagawa Town (Kawanishi City and Inagawa Town, Hyogo)

Background

- Traffic congestion and environmental deterioration are feared due to increasing number of commuting vehicles from the rapidly growing new town to the center.
- It is forecasted that the future road extension will increase the traffic from the new town to the center.

Project

Traffic congestion alleviation by extending the public transport vehicle priority system and by expanding the VICS, etc. and environmental improvement by introducing DPF and low-sulfur diesel for the buses were implemented.

r. Experiment on Verification of TDM by Utilizing 100-yen Bus in Yokohama MM21 Area (Yokohama City, Kanagawa)

Background

- Vehicles concentrating on the holiday tourism places are chronically causing traffic congestion, also hampering other traffic going to/from the city center.
- On holidays, vehicles are coming from outside, while around 20% are vehicles traveling within the city center.

Project

Alleviation of traffic congestion and enhancement of punctuality and speed by introducing PTPS, and reduction of illegal on-street parking and stopping vehicles and wandering vehicles were implemented.

(1) Some Cases of Social Experiment

1) Tokyo Practices

There are 35 million inhabitants in Tokyo province and 84 million trips are made each day. The railway system of the city is well-developed with 1600 km railway network in total and 71 railway lines including 300 km metro line, 1200 km suburban line and 100km monorail lines. These lines are operated by 15 different railway firms (1 firm is operated by the city). There are more than 1000 stations in Tokyo province and 766 stations in the city. In Tokyo, there are traffic congestion oriented studies, traffic demand management studies and environmental pollution prevention studies (Tokyo Metropolitan Air Pollution Department). TDM measures, such as congestion pricing, has not been realized in Tokyo because various problems are not solved among stakeholders; charging fee, equality among potential users, how to deal with priority vehicles and which vehicles to be exempted from charges, how to deal with vehicles owned by residents inside of the area pricing area, and so on.

Following photos show various measures have been taken in Tokyo.

Bicycle park system

Paid bicycle park system

Mobile car park space

Overpass and Signalization

Metro Ticket System

Tokyo Station and Station Square

Bicycle parks are commonly found nearby office buildings, shopping areas, and subway and railway stations. Price and available parking time vary place by place, but almost whole parking system is operated with a parking meter as shown in the upper center photo. (Photo: up to 8 hours 100 yen, about 2TL, and another 8 hours cost 2TL).

Metro Ticket System allows users to buy one-time ticket as well as recharge an IC smart card, a rechargeable contactless smart card ticketing system for public transport. In the Tokyo region, there are two prominent IC smart card systems, Suica and Pasmo, the former is offered by JR East railway and the latter is offered by non JR railway lines. The systems offer interoperability with almost all public transport services in Tokyo and surrounding areas, i.e. users can use either IC smart card for subways, railways, buses and monorails in the Tokyo region. Similar to Suica and Pasmo, other regions also offer similar IC smart card systems, Kitaca, TOICA, Manaca, SUGOCa and so on, and the service providers are recently trying to integrate those IC smart card systems to allow users to use IC smart cards in other regions, i.e. users in Osaka may use ICOCA in the Tokyo region.

Tokyo Station is a key base for Japan's railways with about 3,900 train arrivals and departures serving 1.7 million passengers each day. The avenue from the station plaza to the Imperial Palace is the symbolic gateway to Japan and its capital. JR East (Railway Company) works with stakeholders, such as the national and Tokyo Metropolitan governments, to revitalize the area around Tokyo Station by creating an urban space benefiting the face of the capital and Japan.[2] The Yaesu-side station plaza, (photo on left) including the site of former Railway Clubhouse Building, was expanded to about 45

[2] Upgrading Yaesu-Side of Tokyo Station (Tokyo Station Area Development Project). Atsushi Kaise.

meters wide. Traffic functions were enhanced to form a transport hub suitable for the key base railway station in Tokyo.

Photo 1.3.1 Yaesu-side Station Square and Bird's Eye View of Tokyo Station Area

2) Kyoto Practices

Kyoto, which is one of the 14 World Heritage Sites, is a historical and touristic city. The first light-railway system in Japan (1895) was constructed in Kyoto. Here, a sustainable urban environment is envisioned, thus, the shift from motorized transportation to pedestrianization with the slogan of "Kyoto, enjoyed by walking". It advocates for the use of public transportation by providing an information mainly to pedestrians and instilling a lifestyle which is fond of walking. The following were the actions undertaken for this advocacy:

(i) Several campaigns were conducted for the congestion problems by the Municipality, Police Department and local representatives since 2002 (Traffic Demand Management implementations such as: "Park & Ride", "Slow Life", "Free pass for buses and trains" etc.).

(ii) Traffic Demand Management Committee was formed in 2007 to reduce air pollution in Kyoto.

(iii) Interview surveys with 400 interviewees were completed in 2010

(iv) 9 different bus companies collaborated under the name of Daigo Community Bus.

(v) Short-time parking was allowed for freight unloading activities.

(vi) Park & Ride practices were implemented.

(vii) A committee was established in 2011 in order to restrict the vehicles and ease pedestrians' access to Higashioji–Dori Street. Narrow streets were designated as pedestrian streets with the approval of shopkeepers. Temporary parking places

were formed, with stricter measures for illegal parking of bicycles. Bus services were regulated, and unloading areas were constituted for commercial areas. In implementing these actions, the priority was given to public transportation and pedestrian usage.

(viii) Several implementations were completed and considered as solutions for the traffic congestion caused by private cars in Higashiyama touristic center. It restricted the flow of private cars while increasing pedestrian safety and comfort.

(ix) After undertaking the said actions, private car usage and railway usage decreased by 8% and 4% respectively, while bus usage increased by 4%.

Photo 1.3.2 Restriction on the access of private cars and broadening of the sidewalk

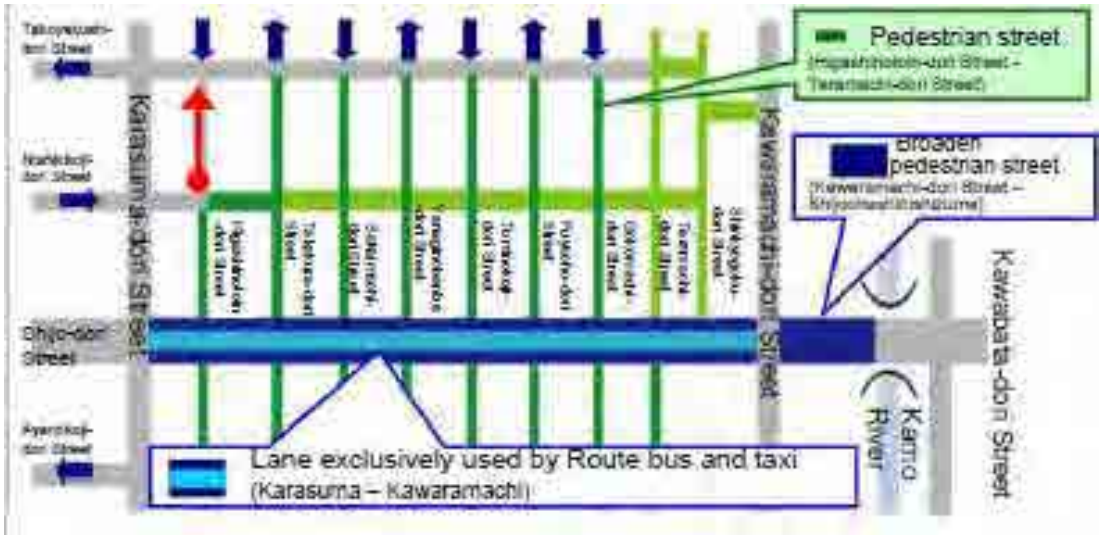

Figure 1.3.3 Social Experiment of Pedestrian Street in Kyoto City

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Photo 1.3.3 Social Experiment of Pedestrian Street in Kyoto city

3) Hiroshima Practices

The social experiments in Hiroshima were conducted to observe the technical performance and reaction of the public towards technical developments. Free training programs about ITS for public education were organized through a seminar or panel and were held 4 times in a year. After the social experiment, the results of policies and systems were re-developed. Public information control was conducted by public firms.

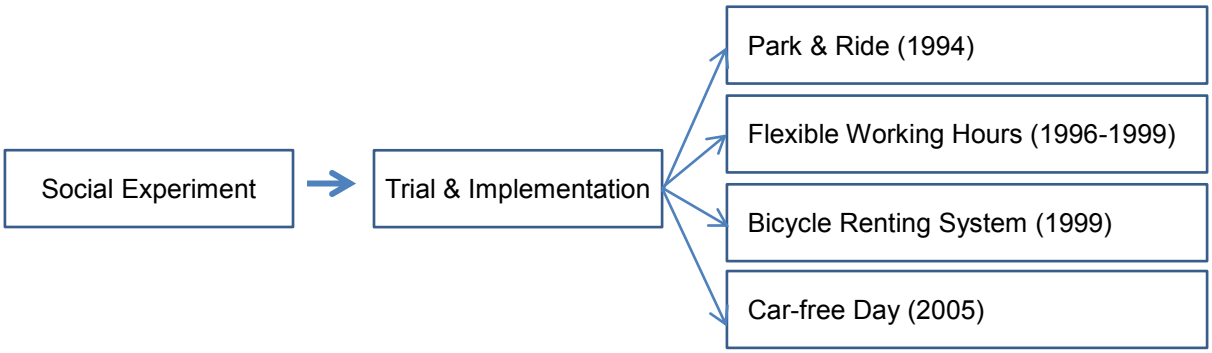

Figure 1.3.4 Social Experiment in Hiroshima City (1994-2005)

In this context, a warning system was developed in 'Probe car', Park & Ride (1994), working hours were regulated and made flexible (1996–1999), bicycle renting system was implemented(1999), car-free days were put in place (2005) and social experiment implementation was completed at accident points.

1.4 TDM and Social Experiments in Istanbul

1.4.1 Overview of Urban Traffic Characteristics and Challenges in Istanbul

One of the most pressing problems in Istanbul is the congestion due to the insufficiency of its traffic infrastructure. In this context, existing problems are being analyzed in details, focusing on identifying the problematic points through real-time traffic measurements and using Transportation Master Plan.

Reasons of the congestion are determined after identifying the traffic congestion points and solution proposals are developed thereafter. Several measures are analyzed including: new investments for constructing road and intersections which have congestion problems; shifting the demand by establishing alternative infrastructures; improving signalization system; containing illegal parking; improving the traffic safety; controlling road safety; increasing related trainings and developing the database of accidents. Some of the developed measures can be included as TDM policies and some others can be considered for developing new infrastructure investments.

1.4.2 TDM as an Approach to Solve Urban Traffic Problems in Istanbul

TDM approaches are analyzed in the context of Transportation Master Plan which is prepared to improve traffic conditions and traffic safety in Istanbul. In the context of this study, TDM measures used around the world are analyzed first. Then through various criteria, the most beneficial method for Istanbul is determined.

In Istanbul, the following have become prominent: congestion pricing; transfer centers and park & ride implementations; parking lot demand management; bicycle and pedestrian transportation development; taxi operation plan formulation; pricing policies for public transportation; highway and Bosphorus pass usage; and traffic cell system implementation in Historical Peninsula.

1.4.3 TDM Social Experiments in the Context of JICA Project

Two projects are aimed to be developed as TDM social experiments in the context of JICA project. The first one is the implementation of Smart Parking System in Fatih district. This project aims at minimizing the time lost while seeking for a parking space; decreasing illegal parking and the queues in front of the parking lot entrance; and reducing the number of drivers seeking for a parking space.

The second social experiment project plans to establish a traffic cell system in a selected pilot area in Historical Peninsula. This project aims at increasing the living standards of residents by easing the pedestrian flow in dense areas, decreasing the negative effects of noise and air pollution on human health caused by the traffic, and decreasing the corrosions on historical buildings.

（1） Institutional Arrangement for TDM Social Experiments

An administrative structure for management of the Project has been organized with two levels of committees to assure effective and successful implementation of the technical cooperation for the Project, namely, 1) Steering Committee where technical issues are discussed and oriented for their solutions in the course of the Project; and 2) Joint Coordination Committee, the highest decision-making venue for the Project, whose functions are to approve the Project basic framework, to formulate annual work plans, review the progress and direct major issues that may arise during the implementation of the Project.

Table 1.4.1 Member of Steering Committee and Joint Coordination Committee

Steering Committee (SC)

Roles	Position
Project Manager	Director of Transport Planning Directorate of Transport Department of IMM
Members	Officer of Transport Planning Directorate
	Officer of Transport Planning Directorate
	Officer of Transport Planning Directorate
	Officer of Transport Planning Directorate
	Officer of Transport Planning Directorate
	Officer of Transport Planning Directorate
	Officer of Transport Planning Directorate
	Officer of Transport Planning Directorate
	Officer of Transport Planning Directorate
	Officer of Transport Planning Directorate
	Officer of Transport Planning Directorate
	Officer of Transport Planning Directorate
	Officer of Transport Coordination Directorate
	Officer of Traffic Directorate
	Officer of Mass Transport Services Directorate
	Officer of Road Maintenance and Repair Directorate
	Officer of Fatih Municipality

Joint Coordination Committee (JCC)

Roles	Organization
Chairperson	Transport Department
Turkish Member	Transport Planning Directorate
	Transport Coordination Directorate
	Traffic Directorate
	Mass Transport Services Directorate
	Road Maintenance and Repair Directorate(*)
	Representative of Fatih Municipality

This project is conducted by the Working Group composed of Transport Planning Directorate, Coordination Directorate, Traffic Directorate, Public Transport Directorate, Road Maintenance Department and Fatih Municipality. (Table 1.4.1)

And Transport Planning Directorate of Transport Department is the specific composition of the counterpart to the JICA Project Team. And this Working Group will be composed of Project and Study Department, İETT, Otobus, Istanbul Ulaşı, İSPARK, İSBAK and

other related agencies as necessary. Coordination of Transportation Department (UKOME) and Transport Traffic Management Board (UTK) are key stakeholders for implementing TDM measures, since all the transport measures need to get approval from them.

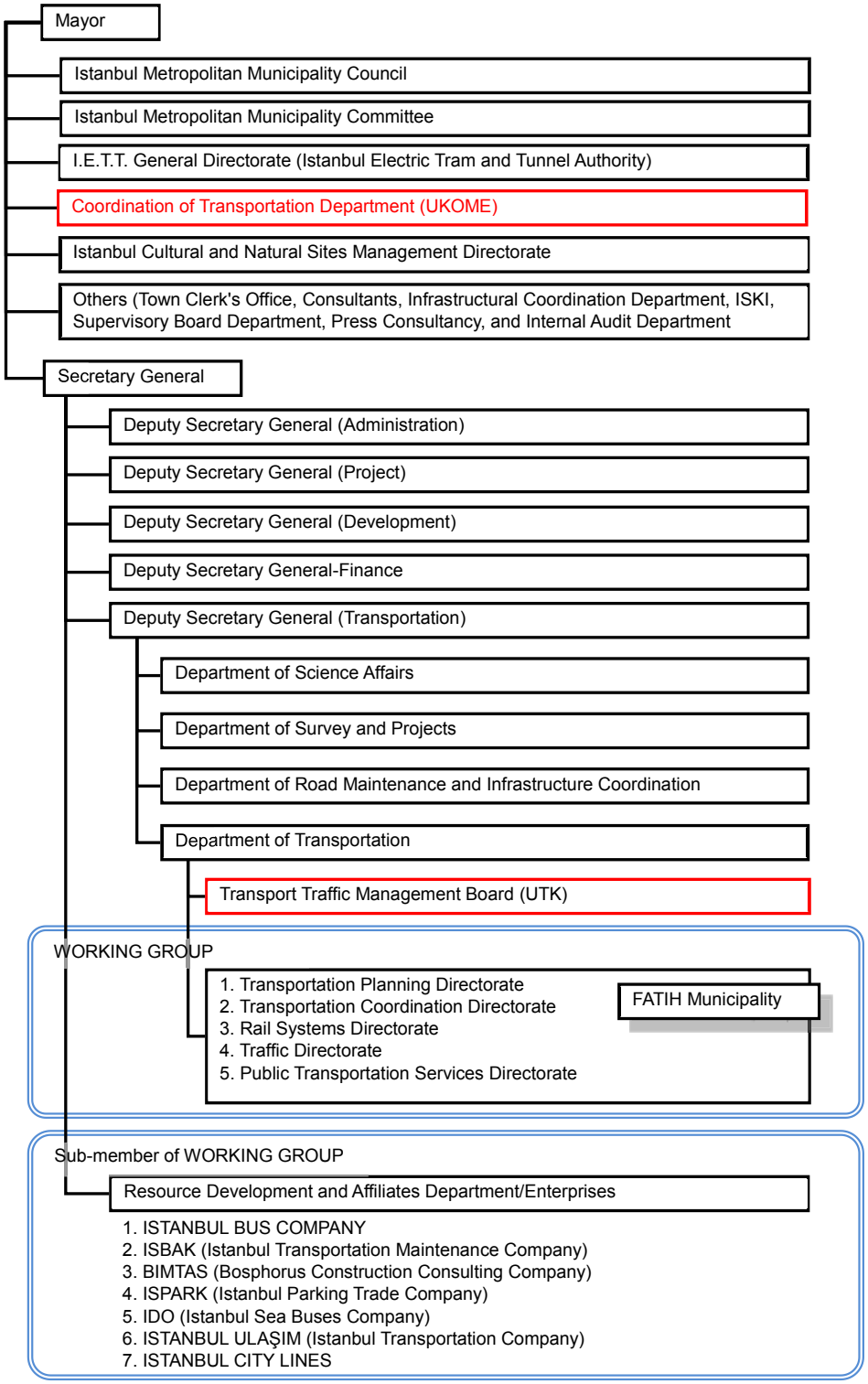

Figure 1.4.1 Structure of related Agencies and Working Group

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2 CONDUCTING THE 1ST SOCIAL EXPERIMENT

2.1 Overview of the Smart Parking System (SPS) Social Experiment

2.1.1 Outline of the SPS Social Experiment

Table 2.1.1 briefly summarizes the SPS Social Experiment which served as the 1st Social Experiment. The experiment lasted for 1.5 months and was conducted between mid-January and February 2013.

Table 2.1.1 Outline of the SPS Social Experiment

Target Area	Fatih Municipality in Istanbul
Situation and Challenges in the Area	• The former Eminönü district in Fatih Municipality holds several world cultural heritage sites. Being a tourist destination, its roads are always congested due to the large number of leather and clothing wholesale shops, as well as other tourism-related businesses such as hotels, restaurants, and souvenir shops. • Istanbul Metropolitan Municipality (IMM) closed some roads to vehicle traffic in order to pedestrianize the area which would consequently lead to the protection of historical architecture and improvement in the traffic environment.
Experiment Objectives	• Reduce traffic congestion in the former Eminönü district by increasing parking utilization and enhancing access to parking lots.
Activities/ Target Parking Lots	• Introduction of parking information service through the traffic information website, mobile phone applications, and information boards (Five parking lots were targeted around the Vatan Street crossing the central area of Fatih Municipality. See Figure 2.1.1) • Operation of shuttle buses
Experiment Period	• January 15 – January 31, 2013 (17 days): Preliminary implementation • February 1 –February 28, 2013 (28 days): Full-scale implementation
Responsible Organizations	• Transport Planning Directorate, Transport Department, IMM • Relevant departments and directorates such as the Traffic Directorate and Coordination Directorate of the Transport Department, IMM • Municipal parking management company (İSPARK) and private parking management company (TAVG) • Fatih Municipal Government
Public Relations	• Public announcement on the IMM website • Posting of leaflet on the IMM website • Press release/coverage on television and newspapers
Principal Tasks	• Discuss preparations with relevant organizations and draft implementation plan outline • Convene social experiment committee meetings (1) before the development of the detailed implementation plan and (2) after gathering the evaluation results • Develop a detailed implementation plan and approval procedures • Perform preparatory undertakings such as coordination with relevant organizations, setting up of information boards, and development of information service application • Conduct the campaigns and the experiment • Monitor and evaluate the results through conducting surveys before and after the experiment • Prepare implementation report
Experiment Results	• Less than 30% of the target became aware of SPS. This may be attributed to the problem in distributing leaflets and putting up posters because the final approval within IMM was not obtained. • Despite the limited reach, SPS has a confirmed positive impact in shortening the travel time and modifying behavior in terms of choosing walking over riding a private or public vehicle. • Whether the users utilized the SPS or not, they have positive reception and high expectations on the utilization of SPS, as well as to its expansion in other areas in Fatih/Istanbul. • Users who illegally park showed high level of interest in SPS although it did not lead to their behavior modification.
Future Activities	• Conduct discussions with relevant organizations on the continuation and expansion of SPS.

Figure 2.1.1 Target Parking Lots of the Smart Parking System (SPS) Social Experiment

2.1.2 The SPS Concept

Since drivers tend to choose parking spaces that are close to their final destination, parking lots are congested in areas with high density of offices and commercial facilities. The parking behavior of drivers also contribute to traffic congesting, especially when vehicles park illegally or move around to search for available parking spaces.

The SPS introduced by the 1st Social Experiment is a transportation service that provides parking information through the Internet and cellular phones. It also operates shuttle bus service from distant parking lots to the commercial areas. By providing details about parking locations, availability, and fees via the parking information service, the SPS aims at achieving the following effects:

(i) Reduce the number of vehicles that are moving around in search of parking lots;

(ii) Motivate drivers to use parking lots outside the most congested areas by providing shuttle bus service; and

(iii) Ease traffic congestion in the central area.

The basic concept of SPS is shown in Figure 2.1.2.

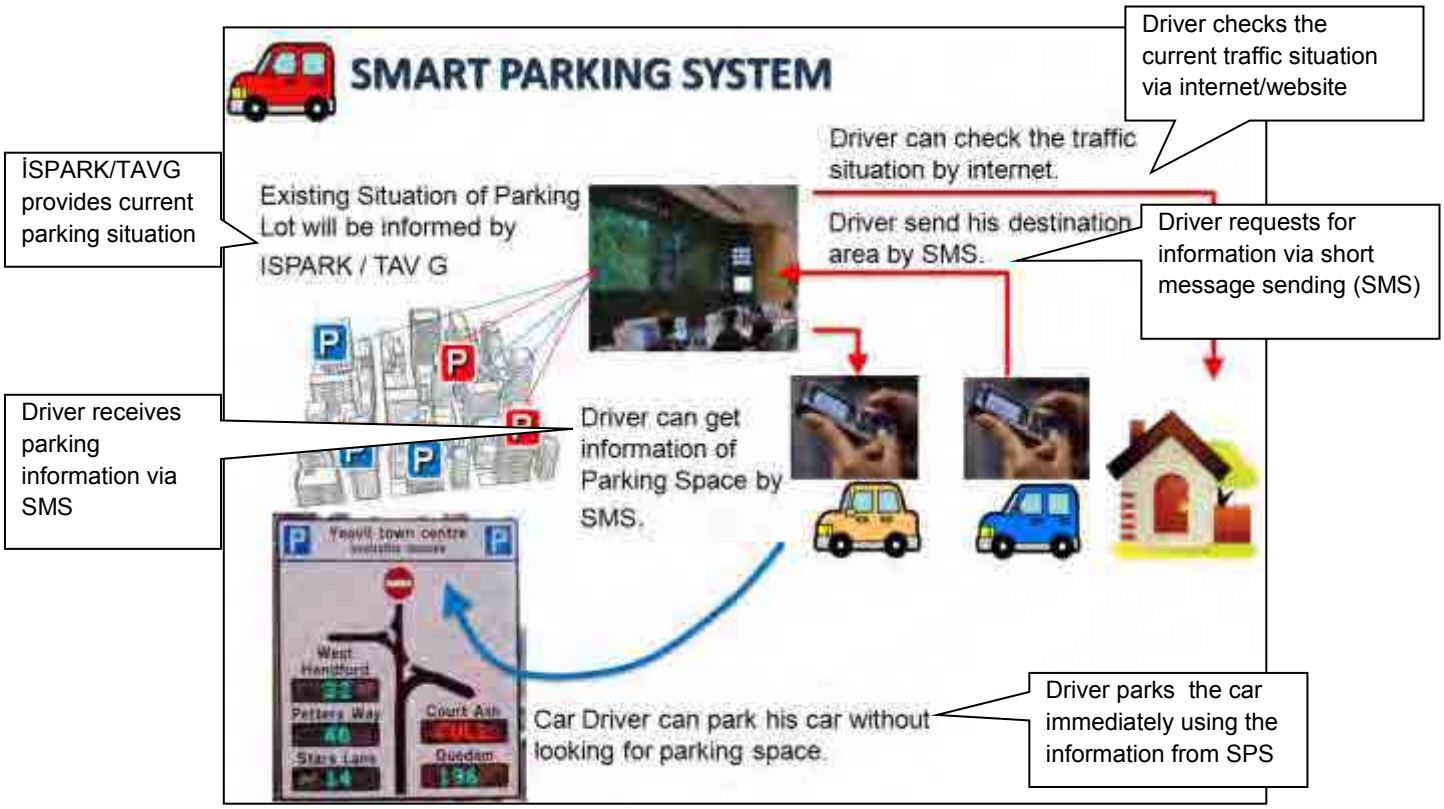

Figure 2.1.2 Basic Concept of the Smart Parking System (SPS)

2.1.3 Parking Information Service

In the SPS Social Experiment, parking information was provided through the following tools:

(i) Website;

(ii) Cellular phones; and

(iii) Parking information boards.

1) Parking Information Service through the Website

The Traffic Information Website owned by the IMM Transport Department provided information about the location and capacity of target parking lots (see Figure 2.1.3).

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Figure 2.1.3 Parking Information Service through the Traffic Information Website

2) Parking Information Service through Cellular Phones

Two mobile phone applications were developed to provide free parking information service. The first one is designed for IOS users while the other was designed for Android users (see Figure 2.1.4 and Figure 2.1.5). The applications provided information about the parking location, accessibility, fee, capacity, and vacancy. .

Figure 2.1.4 Parking Information Service for IOS Users

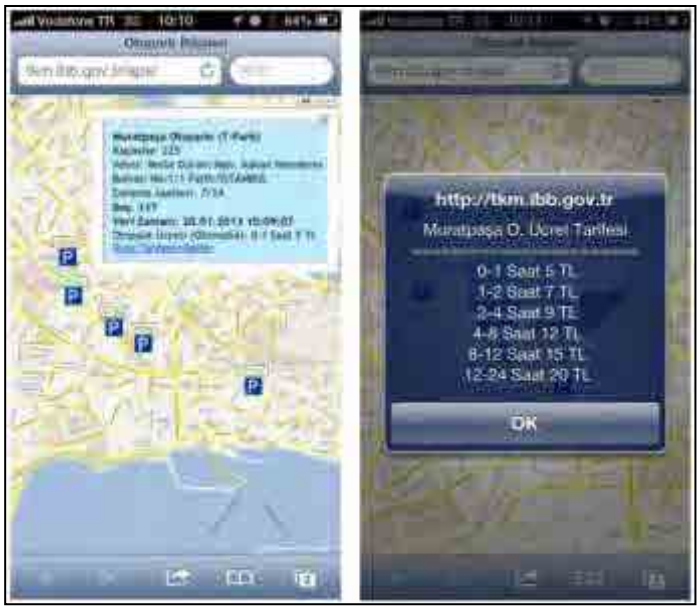

Figure 2.1.5 Parking Information Service for Android Users

3) Parking Information Service through Information Boards

Placed in four access points of the target area, the information boards provided details of the parking lots including location and number of available spaces which is updated every five minutes.

Figure 2.1.6 Parking Information Service through Information Boards

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2.1.4 Shuttle Bus Service

The SPS Social Experiment introduced shuttle buses for parking users. A circular route on the main street (Vatan Street), crossing the central area of Fatih Municipality, links the five target parking lots. During peak hours, six shuttle buses leave every 15 minutes, while during off-peak hours, they leave every 20 minutes (see Figure 2.1.7 and Figure 2.1.8).

Figure 2.1.7 Shuttle Bus Service

Figure 2.1.8 Route and Schedule of Shuttle Bus Service

2.1.5 Public Relations

Details of the SPS Social Experiment were announced on the IMM website. An SPS leaflet was also uploaded on the website. However, hard copies of the leaflets, as well as the posters, could not be distributed because final approval within IMM was not obtained.

Figure 2.1.9 Advertisement on the IMM Website

Figure 2.1.10 SPS Leaflet

The Turkish state TV (TNT 1) and nationwide TV (KANAL D) broadcasted the SPS Social Experiment. Twelve newspapers also carried articles about the project. JICA was acknowledged on the papers as the partner of IMM in the experiment.

Figure 2.1.11 TV Coverage on SPS

2.2 Implementation Procedures and Schedule of the SPS Social Experiment

2.2.1 Implementation Procedures of the SPS Social Experiment

Figure 2.2.1 shows a basic concept of Implementation procedures for the experiment.

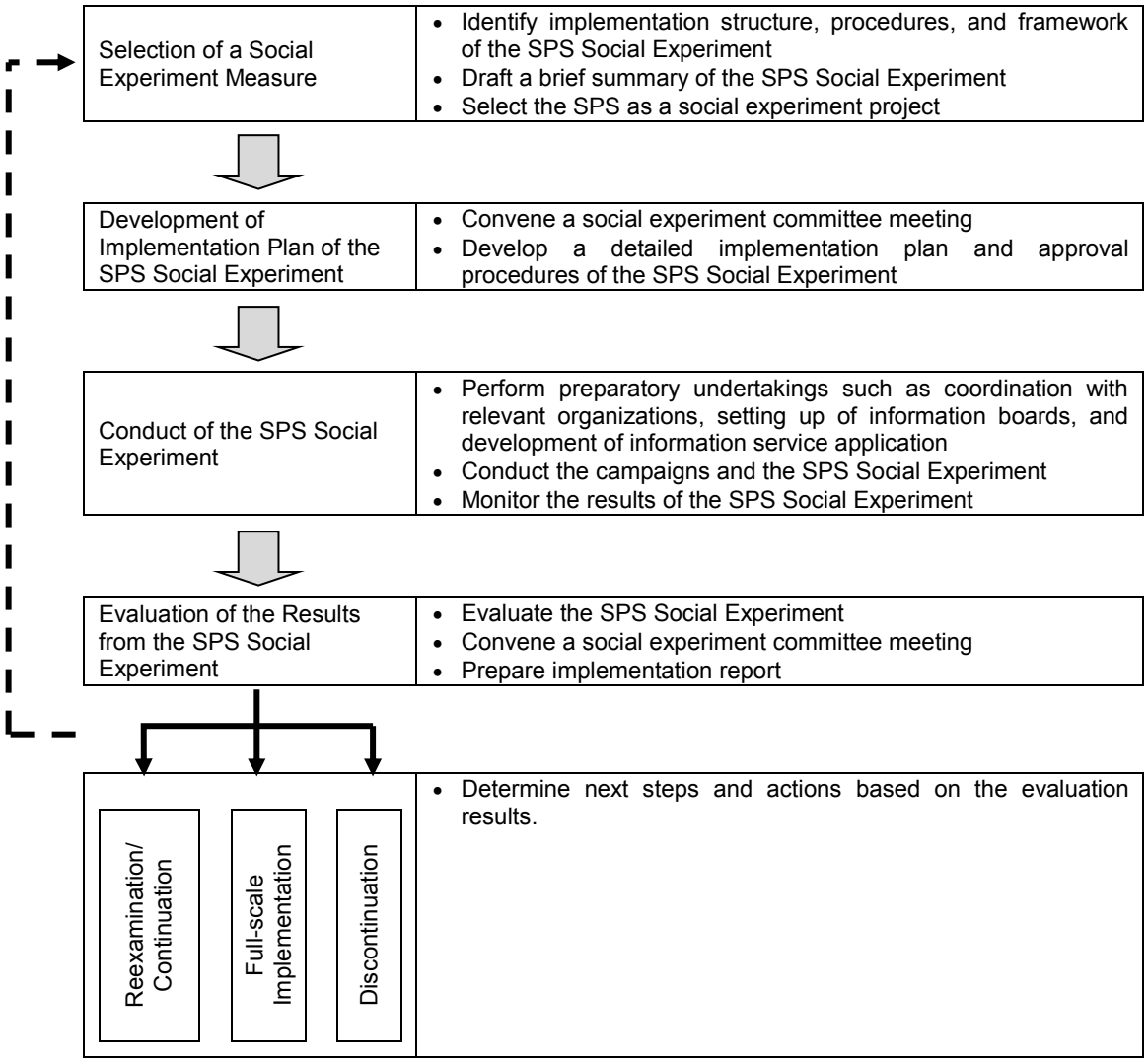

Figure 2.2.1 Implementation Procedures for the Smart Parking System (SPS) Social Experiment

(1) Traffic Survey Traffic Facility Survey and Social Survey

As a normal procedure, if time, financial and human resources are available, various traffic, traffic facility and social surveys are carried out to capture existing traffic conditions and identify issues rooted out from those analyses. Variation of traffic and social survey is depending on what kind of social experiment is presumed and what kind of data shall be needed to verify the traffic issues and used for a post-social experiment evaluation when compared before and after conditions.

In order to capture the existing traffic conditions in Istanbul, in particular, in the Historical area, several traffic surveys were conducted in advance to the Social Experiment. For the Social Survey, (i) cordon line survey, (ii) traffic count survey at major intersections, (iii) bus transport survey, (iv) travel speed survey, (v) car park survey, (vi) social survey and (vii) taxi probe survey were selected and carried out.

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Cordon Line Survey

The cordon line survey was conducted to obtain incoming and outgoing traffic volume of the Historical Area and understand traffic characteristics such as origin and destination, and purpose. The trip information, origin and destination, purpose, freight information, perception on existing transportation service, etc., were recorded by interview survey for sampled vehicle driver/passengers. Trip purpose had several categories such as to/from work, to/from school, on business, shopping and leisure, and others. Sample rates depend on the traffic volume; 5% as a target rate of passing vehicles and passengers as long as interview survey does not interrupt smooth traffic flow. Vehicle traffic was counted by vehicle type, by direction and by 30 minutes period. Vehicle type included car, truck, route bus, tourism coach, motorbike and other service vehicles. For accurate boundary traffic counting, bicycles and pedestrians were included. In addition, passenger traffic at the rail and sea transport stations was derived from the electronic and regular ticket data taken from related institutions.

The road cordon was set on the boundary of the Historical Area at 5 locations. The station cordon was set at 22 rail stations, 3 dolmuş stops, 1 minibus stop and 4 sea bus, ferry and motorboat piers as follows:

- Road cordon: Ayvansaray, Karaköy, Millet Caddesi, Vatan Caddesi, Yedikule
- Tram Line 1: Eminönü, Sirkeci, Gülhane, Sultanahmet, Çemberlitaş, Beyazıt, Laleli, Aksaray, Yusuf Paşa, Haseki, Fındıkzade, Çapa Şehremini, Pazartekke;
- Airport Light Metro Line: Aksaray, Emniyet, Ulubatlı;
- State Line: Yedikule, Koca Mustafa Paşa, Yenikapı, Kumkapı, Cankurtaran, Sirkeci;
- Dolmuş stops: Yusufpaşa, Kocamustafapaşa, Eminönü;
- Minibus stop: Aksaray;
- Sea Piers located in: Ayvansaray, Eminönü, Sirkeci, Yenikapı.

Figure 2.2.2 Cordon Survey Points

Traffic Count Survey at Major Intersections

The traffic count survey was conducted at major intersections in the Historical Area for further analyzing vehicular traffic movement in addition to the road cordon line survey. The survey was conducted to get the traffic volume by vehicle type; car, taxi, bus, minibus, light truck, truck, intercity bus, motorbike and service bus, by direction and by 15 minutes period.

Five sites were selected for the traffic count survey. They are Sirkeci, Unkapanı, Saraçhane, Aksaray and Yenikapı.

Figure 2.2.3 Intersection of Road Traffic Count Survey (Intersection Points)

Bus Transport Survey

The bus transport survey was conducted at bus, dolmuş and minibus terminals in the Historical Area to collect bus service data and perceptions of present bus passengers on existing services. The survey had 3 activities, i.e., (i) operation data collection, (ii) bus passenger count at terminals and (iii) bus passenger interview at terminals.

(i) Operation data collection: route, fleet, frequency, average occupancy from bus / dolmuş / minibus operators serving in the Historical Area

(ii) Bus passenger count: The number of riding/aligning passengers by fleet type, by terminal and by 30 minutes period

(iii) Bus passenger interview: origin and destination, trip purpose, access to/from bus terminal, perceptions on the existing bus services

Travel Speed Survey

The travel speed survey provided estimates of the average speed of road traffic and of congestion levels in the Historical Area under different time zones and days. The survey was conducted by the floating car method which requires the survey vehicle to keep the same position and attitude in the traffic flow. Data to be collected were time of departure and arrival (start and end point of a route), time of passing intersections, and time of stop and restart with stopping reason.

The following 9 routes were selected for the travel speed survey:

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- Ayvansaray – Fener – Unkapanı – Eminönü
- Eminönü – Yenikapı (through Kennedy Road)
- Yenikapı – Yedikule
- Unkapanı – Aksaray – Yenikapı
- Büyük Reşitpaşa – Şehzadebası - Fevzipaşa – Edirnekapı
- Aksaray – Ulubatlı
- Beyazıt - Aksaray – Topkapı
- Sirkeci – Sultanahmet – Beyazıt
- Yedikule – Silvrikapı – Topkapı – Edirnekapı – Ayvansaray

Figure 2.2.4 Surveyed Routes of Travel Speed Survey

Taxi Probe Survey

The taxi probe survey is conducted to obtain rough characteristics of taxi behavior in Historical Area including Operation Route, Operation Distance, Coverage Area, and Travel speed. The taxi behaviors are recorded by GPS loggers which are put on the dashboard of taxis in the Historical Area.

Car Park Survey

The car park survey generated multi-dimensional database of all car parks in the Historical Area in order to form a basis for car park policy setting. For analyzing all operational car parks in the Historical Area, three survey activities were conducted, i.e., (i) inventory survey, (ii) entry/exit survey, and (iii) user interview survey.

(i) Inventory survey: It encompassed operator's name, capacity, car park shape particularly entry/exit, tariff, other statistical data such as the number of users and revenue for a certain period. The inventory was made by means of ocular survey and operator's interview is conducted.

(ii) Entry/exit survey: All the parked vehicles were recorded in terms of plate number and vehicle type by every hour.

(iii) User interview survey: It was done with a questionnaire which includes personal and vehicle profile, purpose and frequency of car park use, perception of the existing car park service, etc.

Social Survey

The social survey is to understand existing traffic and transportation problems and needs and the perception and acceptability on TDM measures among various stakeholders of the Historical Area. The collected data must be useful for the disaggregate demand model to predict individual modal choice under improved transport situations in the future. The survey was conducted by direct interview with the following stakeholders:

- Residents within the Historical Area
- Shops within the Historical Area
- Offices within the Historical Area
- Hotels and restaurants within the Historical Area
- Travel agents in Istanbul

(2) Selection of a Social Experiment Measure

Social experiment needs to be discussed and selected in response to the results of traffic-related surveys. However, the 1st Social Experiment was selected by discussions within the working group because of the delays of traffic-related surveys.

The 1st social experiment was selected through following steps.

(1) Step 1: Discussion and sharing about TDM measures and Social Experiments

(2) Step 2: Thrashing out all transport issues in the historical area

Working group was arguing about the transport issues in the historical as follows:

- Historic Peninsula is being used as a transit area and transfer center
- The fact that transportation by wheeled vehicles is the preferred mode of transport in the Historic Peninsula
- The fact that the rail systems are not developed enough for urban transportation
- The fact that different modes of transport in the Site are not being integrated with each other
- Insufficient pedestrian transportation arrangements
- Absence of bicycle lanes
- Insufficient parking lots in the Historic Peninsula and using the roads as parking lots and Limited accessibility for disadvantageous groups and people with disabilities in the Site.

(3) Step 3: Discussion about the TDM measures as countermeasures for transport issues

The nominated TDM measures in order to solve transport issues in historical area within the working group are shown in Table 2.2.1.

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Finally, working group selected Parking Control System, Access Control of Tourist Bus, and Illegal Parking Enforcement.

Table 2.2.1 Spectrum of TDM Measures

	Working	Cycling	Car	Bus	Railway	Commuter
Automatic Vehicle Location System				x	x	x
Bicycle Parking Facilities		x				
Bicycle Paths and Bicycle Lanes		x				
Car sharing			x			
Park and Ride			x			
Parking Pricing and Supply			x			
Parking Control			x			
Pedestrian Zones	x					
Public Bicycle Systems		x				
Road Pricing			x			
Tourist Transport Management	x	x	x	x	x	x
Transit Signal Priority				x		x
Transit Station Improvements				x	x	x
Transit Vehicle Improvements				x	x	x
Traveler Information System			x	x	x	x

(4) Step 4: Discussion about the social experiment of TDM measure

Three social experiments of TDM measures, Parking Control System, Access Control of Tourist Bus, and Illegal Parking Enforcement were nominated. In 3 steps, these were examined in the following aspect, Innovation and Novelty, Availability and Possibility and Coordination Difficulty. As a result, Parking Information System using SMS and Information Board was selected.

Table 2.2.2 Selection of the 1st Social Experiment

	Parking information System using SMS and information board	**Access control of tourist buses in historical area**	**Illegal parking enforcement**
Innovation and Novelty	Parking Information System by using mobile application and SMS is not developed.	Routes and parking space for the tourist buses are controlled. But many buses cause traffic congestion.	There are many illegal parking cars on the road where İSPARK does not control.
Availability and Possibility	İSPARK has a similar plan and demand will be high	Alternative transport mode will be required.	Illegal parking causes traffic congestion, but there is no alternative parking space and access transport.
Coordination Difficulty	Implementation agency is onlyİiSPARK	It will be difficult to coordinate with travel agencies.	It will be difficult to coordinate with illegal parking users, residential people.

Operability	High	Middle:It will be difficult to coordinate with Tourist Agencies.	Low: There is no alternative parking lots and transport modes
Result	Selected	Pending	Pending

(2) Stakeholder Analysis

Table 2.2.3 shows potential stakeholders identified through stakeholder analysis. Since the Social Experiment is intended for the general public, there is no citizen group that directly participates nor indirect citizen group.

Table 2.2.3 Stakeholders of the Social Experiment

Items		1st Social Experiment SPS
Beneficiary	Beneficiary Group	Car Users and Car Park Users
	Direct Participating Citizens' Group	No
	Direct Participating Groups other than Citizens' Group	No
Public Administration	Relevant Agencies in the Preparatory Stage	Transport Department , Road Maintenance and Infrastructure Coordination Department, İSPARK、TAVG Fatih Municipality
	Approval Agency	Transport Department
	Main Agency for the Social Experiment	İSPARK
	Support Agency for Social Experiment	Transport Department , Road Maintenance and infrastructure Coordination Department, TAVG、Fatih Municipality

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2.2.2 Tasks and Schedule for the SPS Social Experiment

Table 2.2.1 shows the tasks and actual activities of the SPS Social Experiment. Figure 2.2.2 also describes the schedule planned on February 2012, as well as the actual schedule.

Table 2.2.4 Tasks and Actual Activities of the Smart Parking System (SPS) Social Experiment

Tasks	Actual Activities
1 Preparatory Meetings • Meetings with relevant organizations (Confirmation of implementation structure, procedures and framework) • Drafting of implementation plan outline	• Discussed with relevant organizations and stakeholders through weekly meetings and a series of other meetings on the initiative of the Transport Planning Directorate • Drafted the implementation plan outline of the SPS Social Experiment after finalizing the framework, implementation structure, and procedures of the experiment
2 1st Social Experiment Committee Meeting • Selection of committee members • Coordination of committee • Preparation for the committee meeting	• Discussed the objectives of the committee and its main activities • Decided to convene two meetings: before the start of the experiment and after the gathering the evaluation results • Organized 1st committee meeting on April 6, 2012 to get ideas and comments on the experiment
3 Approval Procedures for Conduct of the Experiment • Development of detailed implementation plan • Submission and approval of the detailed implementation plan	• Discussed and coordinated with the relevant organizations, and subsequently developed the detailed implementation plan • Acquired the approval on the plan from the Transport Planning Directorate and Traffic Directorate as the approval from UKOME/UTK was not deemed necessary during this time • Coordinated with relevant organizations on the development of parking information boards and cellular phone applications, which required three to four months more than the intended schedule
4 Preparation for the Implementation of the Social Experiment • Development/setup of systems and coordination with relevant organizations • Collection of data and information	• Continued discussions with relevant organizations on the development of information boards, cellular phone applications, and shuttle bus service • Set up the information boards which took half a year behind the schedule due to bidding procedures, which was not deemed necessary at the beginning, and delay in the procurement of materials • Developed, albeit with delay, cellular phone applications and shuttle bus service • Conducted baseline data gathering/pre-experiment survey in January 2013

Tasks	Actual Activities
5 Conduct of Campaigns and Experiment • Conduct of campaigns • Implementation of the SPS Social Experiment	• Conducted series of discussions on implementation methods and campaign programs • Announced the launch of SPS on the IMM website • Cancelled leaflet and poster distribution because the final approval within IMM could not be obtained • Conducted the experiment for 45 days between January 15, 2013 and February 28, 2013, wherein the first 17 days served as the preliminary implementation period
6 Monitoring and Evaluation • Collection of data and information • Evaluation of SPS Social Experiment	• Conducted situation survey on illegal parking around the target parking lot • Carried out interviews to drivers who park legally and illegally • Evaluated the SPS Social Experiment based on the results of monitoring activities and evaluation surveys
7 2nd Social Experiment Committee Meeting • Preparation for the meeting	• Convened the committee meeting on March 19, 2013, which was incorporated in a seminar held around the same time
8 Implementation Plan Formulation • Announcement of the experiment results • Preparation of implementation report	• Discussed future activities and expansion of the SPS in other areas • Prepared implementation report, including the results of the experiment, the lesson learned, and recommendations for future action

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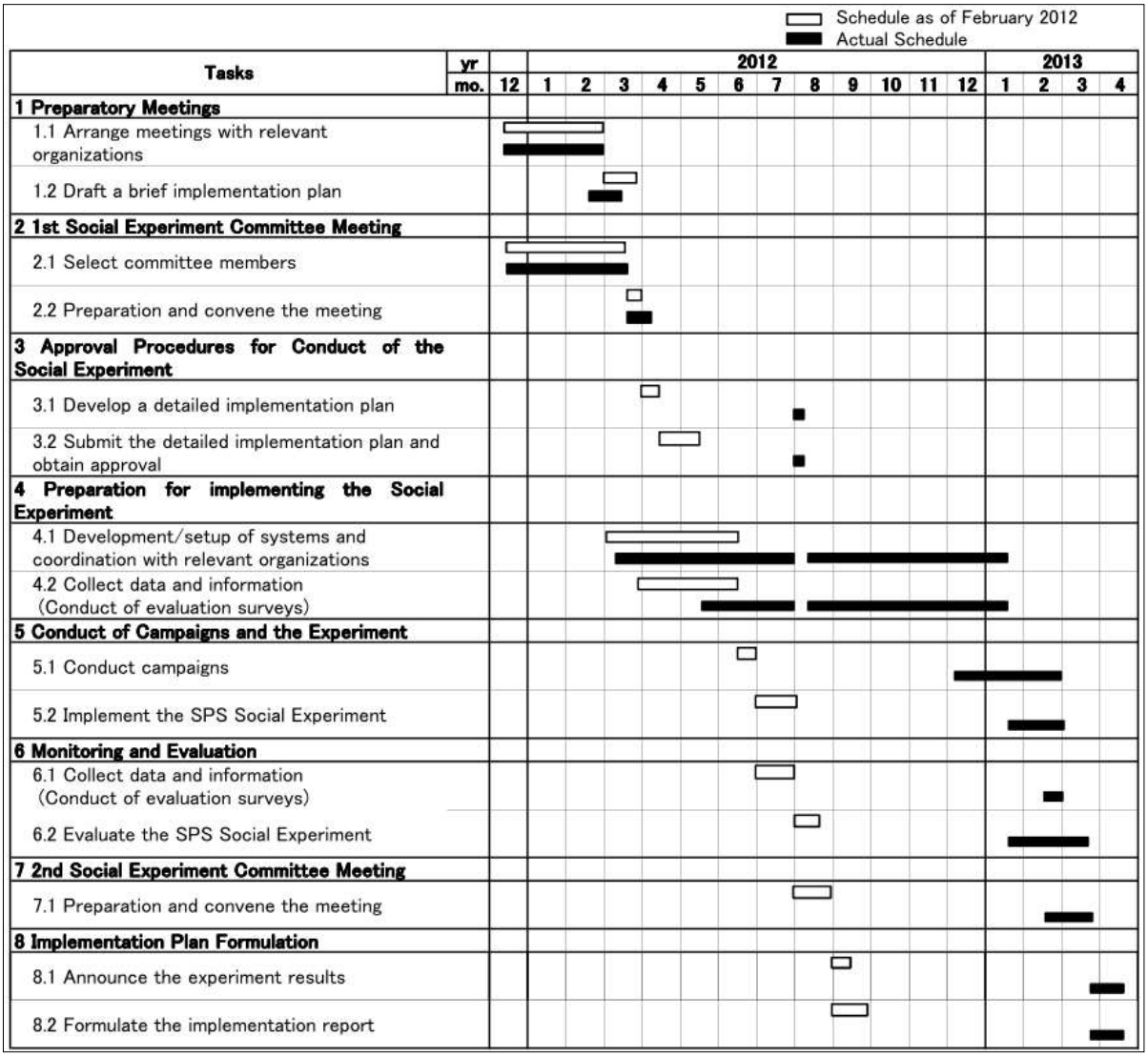

Figure 2.2.5 Schedule of the Smart Parking System (SPS) Social Experiment

2.2.3 SPS Social Experiment Committee Meetings

Table 2.2.2 summarizes the two Social Experiment Committee meetings organized (1) before the development of the detailed implementation plan and (2) after gathering the evaluation results. Both meetings were attended by implementing organizations such as the participating departments and agencies of IMM, Fatih Municipal Government, İSPARK, and TAVG. The meetings were also attended by public transportation operators in Istanbul and university professors. The 2nd meeting, convened after the evaluation of results, was incorporated in a seminar that was organized around the same time, had a relevant program, and attended by the same participants.

Table 2.2.5 Summary of the Social Experiment Committee Meetings

Meeting	Date/Participants	Objectives
1st Meeting	• April 6, 2012 • Before the development of the detailed implementation plan • 24 participants	• Level off the understanding on TDM and other concepts in the social experiment • Explain the implementation plan outline of the SPS Social Experiment • Gather comments and ideas to finalize the implementation plan
2nd Meeting	• March 19, 2013 • After gathering the evaluation results • 44 participants	• Share the evaluation results and lessons learned from the social experiment • Gather ideas for future activities and expansion

The 2nd meeting served as a venue to share the results of the SPS Social Experiment, as well as the lessons learned from the first implementation of the social experiment in Istanbul. According to the feedback from the participants, future activities and expansion of SPS would be examined by the end of March 2013.

Although Table 2.2.5 shows the meetings that were actually carried out in the course of the Social Experiment, it was initially planned to conduct more meetings at every step for organizing participatory meetings to effectively select, plan, conduct, and evaluate the Social Experiment. The frequent meetings also aim at improving transparency as well as consensus building among stakeholders. Due to time constraints and other unavoidable reasons, the committee meetings were held only twice, but it is expected to strive carrying out as shown in.

Table 2.2.6 Schedule and Objectives of Social Experiment Meeting

Meeting	Schedule	Objectives
1st Meeting	After identifying social experiment candidate projects	• Share common understanding or confirm concepts on TDM and social experiment. • Explain simple implementation plans of social experiment candidate projects. • Clarify selection method and evaluation criteria for the candidate projects. • Receive comments and ideas for evaluating the candidate projects and selecting projects to be actually conducted as social experiments.
2nd Meeting	After drafting social experiment implementation plans	• Explain drafted implementation plans of the selected social experiment projects. • Clarify evaluation criteria and necessary data to evaluate the implementation of the social experiment project. • Receive comments and ideas for finalizing the implementation plans.
3rd Meeting	Prior to actually undertaking social experiment	• Report finalized implementation plan of the selected social experiment projects. • Confirm monitoring and evaluation methods of the social experiments. • Request for cooperation and understanding among stakeholders.

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Meeting	Schedule	Objectives
4th Meeting	After evaluation of social experiments	• Report evaluation results of the projects and lessons learned from conduct of the social experiments. • Explain outline of future activities to be undertaken based on the social experiments. • Receive comments and ideas on the evaluation results and future activities.

<Topics to be discussed>

- How to identify candidates and select members of the Social Experiment Committee. (Whether to include local citizens and type of involvement methods.)
- Suitable size of the committee (the number of members).
- How to notify the selected members and obtain their agreements.
- Who should organize and facilitate/chair the Meetings.
- Necessary information disclosure to other relevant organizations and local citizens.

2.3 Evaluation Surveys of the SPS Social Experiment

2.3.1 Outline of the Evaluation Surveys of the SPS Social Experiment

Three evaluation surveys were conducted before the start of the experiment and during the conduct of the experiment.

Table 2.3.1 Evaluation Surveys for the Smart parking System (SPS) Social Experiment

	Survey	Summary
1	Pre-opinion Survey (Before the experiment)	Target: Drivers who park legally using parking lots and drivers who illegally park around the parking lots Survey items: Parking habits, interest in the social experiment, etc. Number of Respondents (Persons):

	Weekday (Monday)	Weekend (Saturday)	Total
Parking Lot Users	194	201	395
Illegal Parking Users	99	68	167
Total	293	269	562

2	Illegal Parking Situation Survey (During the Experiment)	Survey items: Number of illegally parked cars and parking duration Survey schedule (in days):

	Weekday (Monday)	Weekend (Saturday)	Total
Before the Experiment	2 days	2 days	4 days
During the Experiment	2 days	2 days	4 days
Total	4 days	4 days	8 days

3	Interview Survey (During the Experiment)	Targets: Drivers who park legally using parking lots and drivers who illegally park around the parking lots Survey items: Parking habits, evaluation of the social experiment, etc. Number of Respondents (Persons):

	Weekday (Monday)	Weekend (Saturday)	Total
Parking Lot Users	449	428	877
Illegal Parking Users	123	94	217
Total	572	522	1,094

2.3.2 Evaluation Survey Results of the SPS Social Experiment

The results of the SPS Social Experiment were summarized according to the evaluation, awareness, and utilization of SPS.

1) Evaluation of SPS

Table 2.3.2 summarizes the reception of parking users who were familiar with the SPS. The data were gathered through the interview surveys conducted during the experiment. The questions employed a five-grade evaluation scale, with 5 as the highest/most positive score and 1 as the lowest/most negative score. The results were calculated using weighted average of the number of answers and the evaluation scores.

SPS was evaluated to be generally positive. When asked whether the respondents were willing to expand to other areas in Fatih/Istanbul (see Question 1), more than 70.0% answered “Strongly Agree”. Combined with the other positive answer, “Agree,” the positive answer to the question totals 89.0%.

Accuracy of parking information (see Question 3) was rated positively, with an accumulated score of “Strongly Agree” and “Agree” responses totaling to 63.2% of the total number of respondents. After also adding up the “Strongly Agree” and “Agree” responses, the positive satisfaction score for the parking information boards (see Question 5) reached 50.3%. However, only 26.8% of the respondents were positively satisfied with the shuttle bus service (see Question 8), indicating a low rating of the service.

Around half of the respondents (44.9%) shared that SPS did not effectively shorten the travel time (see Question 7). Similarly, around half of the respondents (47.3%) said that they would not use the cellular phone service if there would be service charges. Nonetheless, 35.0% of the respondents positively answered that SPS shortened the travel time and 36.2% were willing to use the SPS cellular phone service even if they would have to pay for doing so.

Table 2.3.2 Evaluation of the Smart Parking System (SPS)

Questions		Strongly Agree ←			→ Strongly Disagree		Valid Responses	Scores
1	Use the SPS if the SPS expands to other areas?	202 (71.9%)	48 (17.1%)	16 (5.7%)	5 (1.8%)	10 (3.6%)	281	4.5
2	The SPS is easily understandable.	143 (51.4%)	60 (21.6%)	33 (11.9%)	34 (12.2%)	8 (2.9%)	278	4.1
3	Information provided by the SPS was correct.	98 (36.4%)	72 (26.8%)	81 (30.1%)	5 (1.9%)	13 (4.8%)	269	3.9
4	Updating frequency of parking information was satisfactory.	47 (17.0%)	62 (22.5%)	126 (45.7%)	15 (5.4%)	26 (9.4%)	276	3.3
5	Parking lots in the SPS were enough.	69 (24.7%)	92 (33.0%)	36 (12.9%)	21 (7.5%)	61 (21.9%)	279	3.3
6	Parking information boards were satisfactory.	69 (24.8%)	71 (25.5%)	55 (19.8%)	42 (15.1%)	41 (14.7%)	278	3.3
7	Travel time was shortened.	62 (22.6%)	34 (12.4%)	55 (20.1%)	79 (28.8%)	44 (16.1%)	274	3.0
8	Shuttle bus service was satisfactory.	40 (16.5%)	25 (10.3%)	96 (39.7%)	40 (16.5%)	41 (16.9%)	242	2.9
9	Use public transportation instead of shuttle buses if convenience is enhanced?	60 (22.0%)	34 (12.5%)	49 (17.9%)	38 (13.9%)	92 (33.7%)	273	2.8

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Questions		Strongly Agree ←			→ Strongly Disagree		Valid Responses	Scores
10	Use the SPS even if cellular information service is charged?	46 (16.5%)	55 (19.7%)	46 (16.5%)	32 (11.5%)	100 (35.8%)	279	2.7
11	Use shuttle buses even if the service is charged?	29 (10.5%)	42 (15.3%)	51 (18.5%)	46 (16.7%)	107 (38.9%)	275	2.4
12	Campaigns affected parking usage.	18 (6.6%)	17 (6.2%)	21 (7.7%)	83 (30.4%)	134 (49.1%)	273	1.9

Note: Results were calculated using weighted average of the number of answers and the five-grade evaluation scores

From the pre-experiment survey answered by drivers who illegally park, 80.2% of the respondents replied that they would use the SPS (see Table 2.3.3), indicating a high rate of interest in the SPS from the drivers who illegally park. This question was asked after the SPS was explained to the respondents in detail.

Table 2.3.3 Interest in Smart Parking System (SPS) by Drivers who Park Illegally

Question	Definitely ←			→ Definitely Not		Valid Responses
Would you use the SPS?	44 (26.3%)	90 (53.9%)	6 (3.6%)	22 (13.2%)	5 (3.0%)	167

2) Awareness of SPS

Table 2.3.4 shows the reach of SPS during the experiment period. Only three out of ten target users, whether parking legally or illegally, became aware of the SPS. The information dissemination campaign about SPS was conducted without leaflet and poster distribution.

The parking information boards served as the most influential medium by which users received the information (72.9% of the parking users who are aware of the SPS). It was followed by TV (8.9%) and website (6.1%). Interview responses from drivers who park illegally yield similar results.

Table 2.3.4 Recognition Degree of the Smart Parking System (SPS)

	Informed	Not Informed	Valid Responses
Legal parking users	288 (32.8%)	589 (67.2%)	877
Illegal parking users	55 (25.3%)	162 (74.7%)	217

3) Utilization of SPS

Only 15 respondents (5.3%) answered that they used the parking lot because of the SPS. Among the 15 users, three parked along the roads before they learned about SPS and four used another parking lot before utilizing the SPS parking lots.

Table 2.3.5 Smart Parking System (SPS) as a Deciding Factor in Parking Utilization

Parking Behavior		Answers (%)	
		(Indicate Column Title)	(Indicate Column Title)
Utilized this parking lot regardless of the SPS.		270 (94.7)	270 (94.7)
Utilized this parking lot because of the SPS.	Parked by roadside before.	3 (1.1)	15 (5.3)
	Used another parking lot before.	4 (1.4)	
	Often use this parking lot.	8 (2.8)	
Total		285	285

Table 2.3.6, Table 2.3.7, and Table 2.3.8 summarize the answers to questions about “Trip purpose of parking lot users”, “Usage frequency of the parking lots”, and “Reasons for choosing the parking lot,” respectively. Most of the respondents (73.8% of the drivers who park legally and 51.3% of the drivers who park illegally) answered commuting as the most common purpose of their trip. Half of the respondents use the parking lots on a routine basis, with 56.3% of them utilizing the parking lots one or more days a week during weekdays and 58.1% during weekends. Moreover, 28.8% of weekday users and 38.7% of weekend users choose the parking lots because of the availability of parking space.

Table 2.3.6 Trip Purpose of Parking Lot Users

Weekday (Mon.)			Weekend (Sat.)		
	Purposes	Answers (%)		Purposes	Answers (%)
1	Commuting	330 (73.8)	1	Commuting	219 (51.3)
2	Hospital	42 (9.4)	2	Shopping	118 (27.6)
3	Shopping	30 (6.7)	3	Private Business	31 (7.3)
4	Work	18 (4.0)	4	Hospital	21 (4.9)
5	Others	27 (6.1)	5	Others	38 (8.9)
	Total	447		Total	427

Items: 1) Home, 2) Commuting, 3) School, 4) Work, 5) Shopping, 6) Private business (sport, entertainment), 7) hospital, 8) Sightseeing, 9) Visiting outside the city, 10) Others

Table 2.3.7 Usage Frequency of the Parking Lots

Weekday (Mon.)		Weekend (Sat.)	
Usage Frequency	Answers (%)	Usage Frequency	Answers (%)
5-7 days a week	136 (30.4)	5-7 days a week	114 (26.6)
3-4 days a week	54 (12.1)	3-4 days a week	48 (11.2)
1-2 day(s) a week	62 (13.8)	1-2 day(s) a week	87 (20.3)
1-2 day(s) a month	59 (13.2)	1-2 day(s) a month	44 (10.3)
Occasional usage	54 (12.1)	Occasional usage	51 (11.9)
First-time usage	83 (18.5)	First-time usage	84 (19.6)
Total	448	Total	428

Table 2.3.8 Reasons for Choosing the Parking Lot

Weekday (Mon.)			Weekend (Sat.)		
	Reasons	Answers (%)		Reasons	Answers (%)
1	Near the destination	408(95.6)	1	Near the destination	377(93.5)
2	Security	313 (73.3)	2	Security	297(73.3)
3	Easy access	237 (55.5)	3	Easy access	238 (59.1)
4	Usually available	123 (28.8)	4	Usually available	156 (38.7)
5	Affordable price	100 (23.4)	5	Affordable price	54 (13.4)
6	Near a station/shop	10 (2.3)	6	Near a station/shop	19(4.7)
7	Shuttle bus service	0 (0.0)	7	Shuttle bus service	0 (0.0)
8	SPS	0 (0.0)	8	SPS	0 (0.0)
	Respondents	443		Respondents	421

Note: Multiple answers (maximum of three allowed)

Results indicate that users utilize the target parking lot for commuting and that they tend to use it on a routine basis because they know that the parking lots always have available parking spaces. However, the survey failed to capture whether the respondents used the SPS or not. This may be one reason for the insignificant effect of existence of SPS as a deciding factor in the utilization of parking lots as shown in Table 2.3.9. Even first-time users of the parking lots said that they did not consider the existence of SPS in choosing the target parking lots. Only 2.4% of the first-time parking lot users said that they used the parking lot due to SPS.

4) Effects of Utilizing SPS

Table 2.3.9 shows changes in transportation mode and travel time upon utilizing the SPS. Although only 15 out of 285 parking users utilized the parking lots because of the SPS (see Table 2.3.5), all the seven users who were accustomed to using a private vehicle/taxi before the introduction of SPS started walking to their final destinations after the SPS had been put in place. Also, some of the users' total travel time was shortened to 20 to 30 minutes by utilizing the SPS, although there were users whose total travel time stayed the same or became longer. Going back to the evaluation of SPS described in Table 2.3.2, 35.0% of the respondents answered that their travel time was shortened upon utilizing the SPS.

Table 2.3.9 Effects of Utilizing of the Smart Parking System (SPS)

Users	Mode of Transportation between the Parking Lot and Final Destination		Travel Time to the Final Destination from the Origin (in minutes)		
	w/o SPS	w/ SPS	w/o SPS	w/ SPS	Difference
1	Taxi	Walk only	20	6	-14
2	Service bus	Walk only	—	11	—
3	Service bus	Walk only	—	3	—
4	Private vehicle	Walk only	—	25	—
5	Private vehicle	Walk only	30	33	+3
6	Taxi	Walk only	45	50	+5
7	Service bus	Walk only	40	40	±0
8	Service bus	Walk only	60	30	-30
9	Service bus	Walk only	10	22	+12
10	Service bus	Walk only	—	92	—
11	Private vehicle	Walk only	25	21	-4
12	Taxi	Walk only	30	31	+1

Users	Mode of Transportation between the Parking Lot and Final Destination		Travel Time to the Final Destination from the Origin (in minutes)		
	w/o SPS	w/ SPS	w/o SPS	w/ SPS	Difference
13	Service bus	Walk only	70	47	-23
14	Taxi	Walk only	—	31	—
15	Service bus	Walk only	7	16	+9

Notes: Service bus: minivan, microbus, and bus for commuting
Non response or incorrect data are indicated by "—"

At most, there are 30 shuttle bus users in a day and on the average, there are 16. Travel time from the parking lots to the final destinations of most parking lot users (89.7%) does not exceed 10 minutes. Nine out of ten users can also walk from the parking lot to their final destination.

The unpopularity of the use of shuttle buses may not only be attributed to insufficient information dissemination campaigns, but also to the parking behavior of the target users. Many parking lot users did not find the need to use the shuttle buses because they could park near their final destination. Moreover, the distance between the bus stops was deemed to be too long. Nonetheless, the shuttle bus service was positively received, particularly by women, on the grounds of safety and security.

5) Reasons for Illegal Parking

Table 2.3.10 shows the reasons that compel some drivers to park illegally. According to 89.3% of weekday drivers and 94.7% of weekend drivers, they choose to park illegally because they want to leave their cars near their final destination. This reason may perhaps explain the lack of change in behavior of drivers who park illegally before and during the experiment, as reflected in the illegal parking situation survey.

A few weekday users (22.8%) and weekend users (10.6%) said that they prefer to park illegally because fees in the legal parking lots are expensive. On the other hand, 36.3% of weekday users and 18.1% of weekend users are compelled to park illegally because the designated parking lots are always full. Contrary to this, however, the neighboring legal parking lots were not actually full. As such, the following measures might be necessary to promote behavior modification from illegal parking to legal parking:

(i) Strengthen regulations and penalties for illegal parking users;

(ii) Increase/introduce on-street parking fees;

(iii) Provide accurate information on legal parking locations (free or with charge); and

(iv) Promote the benefits of utilizing legal parking lots.

Table 2.3.10 Reasons for Illegal Parking

Weekday (Mon.)			Weekend (Sat.)		
	Reasons	Answers (%)		Reasons	Answers (%)
1	Near the destination	108 (89.3)	1	Near the destination	89 (94.7)
2	Legal parking lots are full	78 (36.3)	2	Legal parking lots are full	17 (18.1)
3	Legal parking fees are expensive	49 (22.8)	3	Legal parking fees are expensive	10 (10.6)
4	Always available	25 (11.6)	4	Always available	5 (5.3)
5	Near a station/shop	6 (2.8)	5	Near a station/shop	2 (2.1)
6	Others	11 (5.1)	6	Others	4 (4.3)
Respondents		121	Respondents		94

Note: Multiple answers (maximum of three allowed)

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2.4 Social Experiment Results and Future Expansion of SPS

2.4.1 Results of the SPS Social Experiment

The evaluation survey results indicated limited effects of SPS since only three out of ten parking users were aware of the project. Moreover, SPS affected only a few respondents' decision to utilize the parking lots. Nonetheless, SPS utilization has positive impacts in shortening the travel time and modifying behavior in terms of choosing walking over riding a private or public vehicle. SPS users also showed positive reception and evaluation, as evident in their high expectations on the expansion of SPS to other areas of Fatih/Istanbul. Even drivers who park illegally showed positive interest in the SPS, although the introduction of the project did not lead to their utilization of legal parking lots.

The SPS Social Experiment was completed seven months behind the target schedule set on February 2012 because it required longer period than initially envisioned to discuss and coordinate the development of parking information boards, cellular phone application, and shuttle bus services. As such, future project management structure should consider time requirements in completing each task.

The project had sufficient time for preparatory activities for the social experiment. Relevant organizations had the opportunity to fully discuss the objectives and procedures, as well as to exchange ideas and opinions on the experiment. Since this served as the first time of IMM Transport Department in implementing the social experiment, it could further enhance its understanding and by participating in a series of activities from training programs in Japan.

2.4.2 Future Expansion of the SPS

The Transport Planning Directorate and other relevant organizations and stakeholders are currently discussing future activities and continuation/expansion of the SPS. The plans of action and points of improvement, which can be used during the 2nd Social Experiment, include the following:

(i) Clarify maintenance and operation structure and cost-sharing;

(ii) Strengthen campaigns and public relation activities by identifying the possible and effective methods and coordination with relevant stakeholders;

(iii) Provide accurate information on legal parking locations (free or with charge) and availability;

(iv) Promote the benefits of utilizing legal parking lots;

(v) Strengthen regulations for illegal parking users; and

Strengthen the project management structure, particularly on time management and communication.

3 STEPS IN IMPLEMENTING THE TRAFFIC CELL SYSTEM

3.1 The 1st Step: Selection of Traffic Cell System Project as TDM Method

The Traffic Cell System aims at alleviating traffic, or the number of vehicles that enter or exit the area, thereby reducing traffic congestion and, consequently, improving the residents' living conditions.

Since the Historical Peninsula Area is surrounded by the Golden Horn (north and east), Marmara Sea (south), and ramparts (west) where it is relatively east to control. However, dense pedestrian traffic is partitioned and affected negatively by high volume of traffic.

The area is the most important district of Istanbul in terms of tourism. As such, the goal is to decrease vehicular traffic as much as possible and to develop alternative transport modes in the area.

Plans in Fatih area include investing in a high-capacity railway system and increasing the usage of public transportation. However, TDM projects that aim at using the existing infrastructure efficiently are also deemed important.

The need for the implementation of the Traffic Cell System Project in Historical Peninsula Area is stated in the Transportation Master Plan that was approved in 2011. Anchoring on this, the Traffic Cell System was resolved to be implemented as a social experiment model.

(i) Should have a controllable area size;

(ii) Should encompass several land use functions;

(iii) Should have problems waiting for solutions; and

(iv) Should not be any suggestion to solve those basic problems.

3.2 The 2nd Step: Developing the Implementation Plan

After selecting the most appropriate area for study based on the criteria, an implementation plan will be prepared for the area.

The study will be conducted in different stages. As a preparatory measure for the development of the implementation plan, a detailed preliminary field survey will be conducted.

The objective of the field surveys is to gather information on the following:

(a) Private production areas,

(b) The areas with congestion problems,

(c) Present traffic circulation plan; and

(d) The sections which has dense pedestrian movement

After gathering the current situation (baseline data), the problems will be identified and possible solutions will be developed.

The field survey will be repeated and modified according to the developed possible solution suggestions. The project concepts will be presented and studied in both office and field works until the implementation plan that provides optimum solution is identified.

A draft implementation plan, work schedule, and cost sheet will be prepared. These will be presented to and discussed with the stakeholders.

(a) **Development of Implementation Plan:** Implementation plan will be developed based on the discussions and resolutions made during the social experiment committee meeting.

(b) **Determination of Implementation Cost and Schedule:** Budget and schedule will be prepared based on the implementation plan.

(c) **Development of a Detailed Implementation Plan:** A more detailed implementation plan will be prepared which will include the tasks, activities, cost, and schedule.

(d) **Convening for the 2nd Social Experiment Committee:** The detailed implementation plan will be presented to the stakeholders. The goal of the 2nd Social Experiment Committee will be to inform and gather feedback from the stakeholders, including the public, about the process.

(e) **Getting Approvals from UKOME/UTK:** The detailed implementation plan will be presented to concerned agencies/commissions such as UKOME or UTK in order to get the necessary approvals. Once the approvals have been acquired, the project implementation process will start.

(f) **Preparation for the Implementation:** Preparations for the study, in the office and field area will be undertaken.

(g) **Cooperation with the Stakeholders and Preparation of the Equipment:** Meetings with stakeholders will be conducted in order to finalize the work arrangements and prepare the necessary materials and equipment.

(h) **Collection of Data:** Data will be collected before and after the implementation of the project for impact evaluation. Data collection can be made in the form of surveys.

(i) **Carry out Public Information Campaigns and Conduct the Social Experiment:** The public, together with the stakeholders, will be informed of the implementation process.

(j) **Monitoring and Evaluation:** Results and impact of the experiment will be evaluated based on the comparison of data gathered before and after the experiment.

3.3 3rd Step: Evaluation of the Experiment Results

The evaluation of the experiment results will be included in the implementation plan.

(a) Results of the experiment will be gathered based on the implementation experience, observation, and evaluation study.

(b) Forming a 3rd Social Experiment Committee is stated by 3rd Social experiment Committee and experiment results and it is discussed by all stakeholders, academicians and public participation. The purpose of the discussion is to identify the strengths and weaknesses of the project implementation, which can be used in the development of future social experiments.

(c) The experiment results and implementation report will be presented. This should include the strengths and weaknesses of the project and the recommendations for future action.

3.4 Public Involvement

3.4.1 Spectrum of Public Involvement and Participation

Public involvement, public participation, public engagement, outreach activity, community based planning, among others, various terms are used to describe activities involving general public in planning, monitoring and even evaluation processes for economic and social infrastructure development and urban area planning. One of the starting points to get the general public involved in such activities is to explicitly deliver necessary information to them, in plain language, not with technical jargons, with easy access to further information, if they want to know more.

Figure 3.4.1 shows the relation of information that shall be delivered to the general public, (indirect beneficiaries and direct beneficiaries), and the degree of impacts to them. As for a government agency, and responsible for public service delivery to the general public, primary obligation to the public, the government agency is obliged to deliver minimum required information, such as emergency evacuation information, new policy or measures, or update of guidelines and standards, and so on.

Besides minimum required information, to get more understanding and support from the public, “accountability” is the keyword. It should be contemplated to whom the government agency is accountable, to whom the project executing agency is accountable and to whom a planning unit for a designated area is accountable. To take a step further, nowadays, government agencies, in most cases local government agencies, which are in much closer relation to the residents, employ public involvement, public participation or community engagement activities. Figure 3.4.1 shows where “public involvement” is positioned in the context of information and general public and beneficiaries’ diagram. Suppose a traffic cell plan is under discussion at a planning agency, a question needed to think is to whom we need to be accountable, which comes to a stakeholder analysis as next step and then public participation activities.

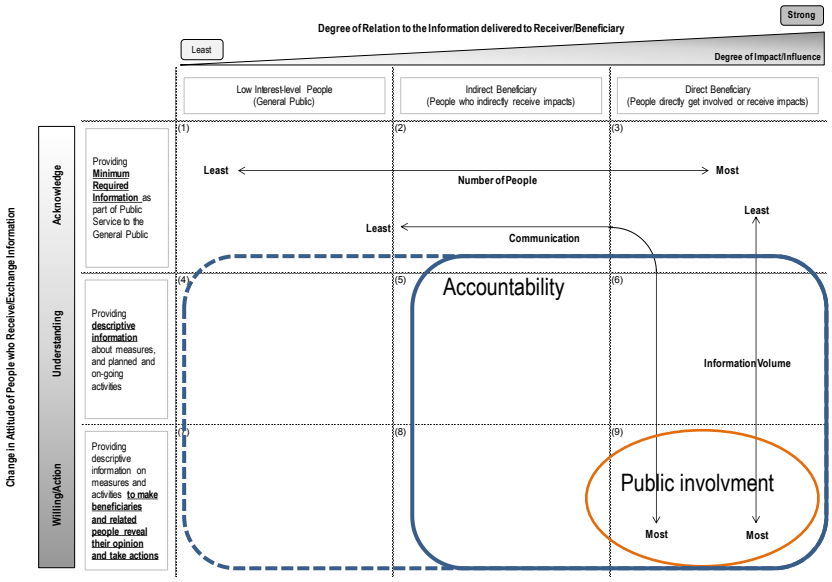

Figure 3.4.1 Information Dissemination and Accountability

Public participation is an essential part of planning, implementation and monitoring processes, in particular, land acquisition, involuntary resettlement, urban redevelopment and any development which might directly impact and change citizens' life. Public participation helps to ensure that decision-makings are made in consideration of and to benefit public needs and references. Early and continuous public involvement brings diverse viewpoints and values into the decision-making process. The process enables agencies to make better informed decisions through collaborative efforts and builds mutual understanding and trust between the agencies and the public they serve. Successful public participation is a continuous process, consisting of a series of activities and actions to both inform the public and stakeholders and to obtain input from them which influence decisions that affect their lives. Conducting meaningful public participation involves seeking public input at specific and key points in the decision-making process issues where such input has a real potential to help shape the final decision or set of actions.

Public participation activities provide more value when they are open, relevant, timely, and appropriate for the intended goal of the public involvement process. Providing a balanced approach with representation of all stakeholders and including measures to seek out and consider the needs of all stakeholders, especially those that are traditionally underserved by past and current transportation programs, facilities, or services[1].

Public Involvement (PI) is interpreted to "citizen participation" and "community participation," where residents can express their opinions reflected in planning and measures from concept and planning stage of public works and planning stage.

Initially the introduction of public involvement has been evolved in public works projects. After Intermodal Surface Transportation Efficiency Act (ISTEA) was enacted in the United States in 1991, the PI became a requirement in the development of regional transport planning, and institutionalization of public involvement went forward. In case of Japan, the

[1] Public Involvment. Federal highway Administration. US Department of Transportation.
URL: http://www.fhwa.dot.gov/planning/public_involvement/

Ministry of Land, Infrastructure, Transport and Tourism (MLIT) formulated the "community participation procedures guideline in the conceptual stage of public works under the MLIT" to promote the standardization of procedures to encourage the residents to participate in public involvement activities.

In the guidelines, in the process of the conception and planning stage of public works, it requires;

- preparation of alternative plans and publication of them to the public
- setting up an organization to facilitate the procedures (coordination council/third party committee)
- measures to ascertain residents' opinions (using internet information dissemination, public hearings, and/or opinion survey)
- publication of decision-making process
- and setting basic concept of each element.

These days, IT, internet, blog, Twitter and Facebook are more used to communicate with residents in many countries and countries where mobile phone usage is prevalent heavily utilize information broadcasting. For example, in some local governments, in order to present in a way that is easy to understand the impact and the contents of the development plan and policies, the initiatives using IT, like GIS, have already begun.

In public involvement, one of the important elements is to provide necessary information for promoting the residents to get involved in community participation processes, and to set-up an appropriate mechanism or method (procedure) that leads to a successful dialogue between the agency and the community. In Baltimore city in the United States, the city government adopted application software, combined with GIS, simulation and animation, to introduce policies and measures, and those impacts to residents and their area. When presenting to residents a redevelopment plan, the agency shows the image of a three-dimensional landscape of the planned development area and alternative development patterns, which give visual and intuitional understanding. That kind of visual information helps them understand better, and make it possible to communicate in an easy-to understand manner to avoid unnecessary conflicts with the residents in the course of projects. Less conflict with and opposition from the residents, as a result, leads to more effective in time, and financially efficient, i.e. less inputs in financial and human resources, in long-run and be able accomplish better outputs which meets residents' needs.

Table 3.4.1 shows the spectrum of public participation developed by the International Association for Public Participation (IAP2) to demonstrate the possible types of engagement with stakeholders and communities. The spectrum also shows the increasing level of public impact as progressing from "inform" to "empower.[2]"

Table 3.4.1 Spectrum of Public Participation

[2] Source: "Community Engagement Guidelines and Toolkit" City of Greater BENDIGO. April 2011.

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Inform	Consult	Involve	Collaborate	Empower
Public Participation Goal: To provide balanced and objective information to assist understanding of topic, alternatives, opportunities and/or solutions.	Public Participation Goal: To obtain public feedback on analysis, alternatives and/or decisions.	Public Participation Goal: To work with the public throughout the process to ensure that concerns and aspirations are consistently understood and considered.	Public Participation Goal: To partner with the public in each aspect of the decision including development of alternatives and identification of preferred solution.	Public Participation Goal: To place final decision making in the hands of the public.
Promise to the Public: We will keep you informed.	Promise to the Public: We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how input influenced the decision.	Promise to the Public: We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how input influenced the decision.	Promise to the Public: We will look to you for direct advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	Promise to the Public: We will implement what you decide.
Example techniques • Fact Sheets • Web sites • Open Days	Example techniques • Public comment • Focus Groups • Surveys	Example techniques • Workshop • Deliberate polling	Example techniques • Form a new community group • Consensus building • Participatory decision-making	Example techniques • Citizen juries • Ballots • Delegated decisions • Citizen Advisory Committees

Low Community Participation ⟷ High Community Participation

>>> Increasing the level of public impact >>>

Source: "Community Engagement Guidelines and Toolkit" City of Greater BENDIGO. April 2011.

3.4.2 Public Involvement

Public involvement is one of indispensable part to good transport and urban planning. Lack of public participation will increase the risk of making poor decisions or decisions that have unintended negative consequences. With proper dialogues with residents and involvement from communities, it will make possible for a lasting contribution to an area's quality of life. Public involvement is more than an agency requirement and more than a means of fulfilling a statutory obligation of the agency in delivering public services to the public.

The fundamental objective of public involvement programs is to ensure that the concerns and issues of every stakeholder in transport issues, in our case, are identified and

addressed in the development of measures, planning and projects being proposed in their communities.

The public includes anyone who resides, and an interest in, or does business in a given area potentially affected by TDM measures, in our case it is traffic cell. The public includes both individuals and organized groups, such as retailer association, religious organization, and porter association and so on. It is also important to include public and private transport service providers in the area, such as trucking and logistics industry, taxi operators and all transit and paratransit service operators.

In Turkey, a process of public participation is specified only in the environmental impact assessment (EIA) regulation. It regulates that a project executing agency or a project owner is required to conduct a public participation meeting. It aims at informing the affected residents and community about a planned project and asking their opinion. Other than for EIA, a public participation is not systematically nor institutionally conducted for urban planning, including transport planning. Since there is no mandatory procedure to carry out the public participation/involvement, voices of objection are only raised by property owners who reside in the affected area. Residents who are not landowners or directly affected from the development can merely "complain" to the project owner, mostly when they notice construction started.

In the 2nd Social Experiment, it is expected to try out public participation/involvement process, in order to incorporate residents' opinions into the planning for getting better social experiment result. Since it will be the first challenge, several ideas about public involvements are introduced to start a discussion how to and what level of public involvement is appropriate for the 2nd Social Experiment.

Definition of "public involvement/participation" and "community engagement"

Public Participation/Involvement

Public participation is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process. Public participation is the process by which an organization consults with interested or affected individuals, organizations, and government entities before making a decision. Public participation is two-way communication and collaborative problem solving with the goal of achieving better and more acceptable decisions[3].

Community Engagement

Community engagement is a dimension of Public Participation. In research, community engagement is a process of inclusive participation that supports mutual respect of values, strategies, and actions for authentic partnership of people affiliated with or self-identified by geographic proximity, special interest, or similar situations to address issues affecting the well-being of the community of focus.

Community engagement is a core element of any research effort involving communities. It requires academic members to become part of the community and community members to become part of the research team, thereby creating a unique working and learning environment before, during, and after the research[4].

[3] COPR role of the public in research work group presented to NIH director, October 31, 2008.
[4] ditto

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3.4.3 Public Involvement Toolkit

The toolkit is designed to be used, ideally with participation from a representative stakeholder group, to assess the optimal approaches and methods for engaging the public in a project; yet, it could be done among the members of Transport Planning Directorate and related agencies in the IMM.

The first step is to ask each participant to answer the list of question. (Table 3.4.2). Next step is to assess the answers. The answers can be summed up and/or averaged to see a certain patterns in answers. If it is deemed to be appropriate and desired, “weight” to each question can be decided before the first step. For example, if question 1 seems to be more important element to see the level of impact, the weight could be given higher than other, such as 1.5 and multiply the result by it.

Table 3.4.2 Level of Impact

Assessment Question	Very Low	Low	Moder-ate	High	Very High
1. What is the anticipated level of conflict, opportunity, controversy, or concern on this issue (Traffic Cell)					
2. How significant are the potential impacts to the public?					
3. How much do the major stakeholders care about this issue (traffic cell)?					
4. What degree of involvement does the public appear to desire or expect?					
5. What is the potential for public impact on the proposed social experiment?					
6. How significant are the possible benefits of involving the public?					
7. How serious are the potential consequences of NOT involving the public?					
8. What level of public participation does IMM desire or expect?					
9. What is the possibility of broad public interest in traffic cell social experiment?					
10. What is the probable level of difficulty in solving the problem or advancing traffic cell social experiment?					

Once the first step of questions is complete, the spectrum is used to discuss levels and methods of engagement with the public. Referring to Table 3.4.3 Level of Public Involvement, a level of public involvement shall be decided. Since it is the first trial of public involvement activity for transport social experiments, the following should be noted.

1) Public involvement aims at having more dialogue with target communities and getting them involved in from early planning stage through the evaluation.

2) Through this public involvement exercise, it is expected that municipality officers learn how to plan, carry out and have meaningful dialogue with the community. It is

important to go though step by step to make sure the target people are well informed and their opinions are listened by the executing agencies of the social experiment. Sharing common understanding with the target people about the process of public involvement and to make sure "who" will make the final decision.

3) Public involvement is a method to get ideas and opinions from the target people as well as general public in order to make a plan more agreeable to the target people; yet, it is not the place to make a final decision. Political, technical and public views are all important to be taken into account to make a plan, so it is understood that public involvement is regarded as efforts to consolidate public opinion, in principle, for this traffic cell social experiment.

Table 3.4.3 Level of Public Involvement

Level	Public Involvement Goal	IMM shall do:	Tools	Community
Empower/ Decide	To place final decision-making in the hands of the public	Implement what public decides	- Advisory committee - Citizen juries - Ballot - Community driven new facilitation group	Decide
Collaborate	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	Partner with public in each aspect of decision	- Citizen advisory committee - Consensus-building - Participator decision-making - Advisory committee	Partner
Involve	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	Work with the public to ensure that their concerns are reflected in planning and provide feedback on how public inputs influence and/or being incorporated in the plan	- Workshop - Steering committee - Advisory committee - Expert panel - Community feedback board - Public hearing	Participate
Consult	To obtain public feedback on analysis, alternatives, and/or decisions.	Keep the public informed, listen to and acknowledge concerns and provide feedback on how public inputs are influence and/or being incorporated in the plan	- Public comment - Focus group meeting - Opinion survey - Public hearing - Community forum/fair - Roadshow	Contribute
Inform	To provide the public with balanced & objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions	Keep the public informed	- Fact sheet information dissemination - Web sites - Open houses - Media release - Project bulletin/pamphlet	Learn

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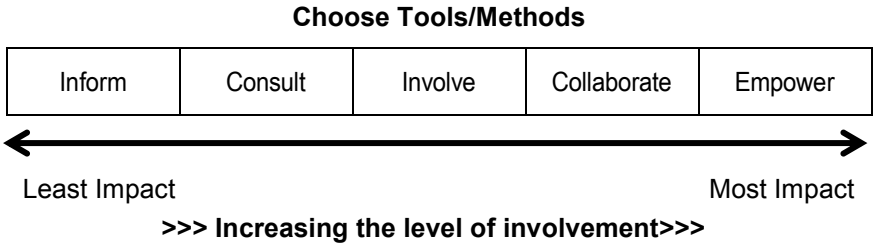

Figure 3.4.2 Selection of Tools/Methods for Public Involvement

The following section shows how to carry out public involvement step by step. It is divided into three phases: Planning for public involvement, planning for public involvement strategy and implementing a public involvement strategy.

(1) Planning for Public Involvement

a. Work with decision makers: At the initial stage of planning, it is crucial to adequately identify who the decision makers are, what their roles are, and when and how they will make decisions.

b. Clarify the decision to be made: It is important to be clear about the decision to be made and what kinds of input are expected through the public involvement. Considering the activity for this guideline is for a social experiment, it is not required to reach to 100% mutual consensus nor full-scale public involvement process, such as for land acquisition and involuntary resettlement. What is more important in this step is to clearly identify the issues and what becomes unclear between the municipal government and the communities, and to identify what decision to be made and what remains unclear.

c. Redefine and reassure the selection of key stakeholders: By this point, preliminary stakeholder analysis must be done and key stakeholders are identified; yet, it is important to redefine and reassure that the stakeholders are defined as those who may be affected by or have specific interests in the decision or issues under consideration.

d. Consider legislative requirements: As implementing agency, it is necessary to review related legislative requirements to commence the implementation of public involvement.

e. Review the selected public involvement impact: After selecting a level of public involvement at the beginning, it is now the time to review the degree of complexity, degree of potential community impact and/or outrage and the degree of political sensitivity.

f. Set up and maintain a public involvement record: It is important to maintain a record of documents used and produced throughout the public involvement process, in particular, proceedings at public hearing, questions and answers, survey feedback and response, relevant meeting records with other local governmental agencies should be kept and be opened as much as possible, taking into account transparency and accountability to the communities.

g. Establish evaluation measures: It is essential to establish basic measurements for evaluating the effectiveness of the public involvement process.

(2) Planning for Public Involvement Strategy

a. Define public involvement objectives: To ensure the decision is achieved and to set clear objectives which guide the process through to completion. The objective shall be indicated to determine how public involvement can support the social experiment during a certain schedule set for the experiment, and to establish criteria to be used in making final decision, and/or conclusion, at least output, of the social experiment to be the input for the next step.

b. Establish public involvement parameters: Parameters provide a clear description of the limitations, and the negotiables and non-negotiables involved in the social experiment. The setting of parameters is often necessary to provide the IMM and stakeholders with baseline or a starting point that allows for realistic expectations.

c. Identify key issues, interests and responses: Issues and levels of interest will emerge as the work with stakeholders progresses through the planning process. It is important to identify these matters as early as possible in the process and develop response strategies.

d. Select suitable tools for public involvement: Selecting the right tool to engage the community is an essential step for a successful communication with the community. A public involvement tool is what is used to facilitate interaction with the community, such as workshop, questionnaire, or a public forum.

e. Evaluate phase two: As indicated in phase one, setting basic evaluation measures in place throughout the process will help to identify areas for improvement and any emerging problems. It is essential to have a reflection meeting among implementing agency members to evaluate whether public involvement objectives are being met and designed to achieve outcomes as described, whether key issues and interests of stakeholders have been clearly and correctly identified, or whether appropriate responses were developed to address the issues and interests and so on.

(3) Implementing a Public Involvement Strategy

a. Develop an action plan: An Action plan shall be developed to implement the public involvement strategy. It sets out the tasks required and the operation directions.

b. Complete a task breakdown: Each task on the action plan shall be furtherbroken down into more specific tasks to clarify what needs to be done, who needs to do it, when it is to be done by and when it is completed, as being illustrated in the first social experiment.

c. Evaluate the implementation step: Based on the evaluation criteria, the implementation phase shall be evaluate from two points of view, i.e. first one is the evaluation of the social experiment itself, and the second is the implementation of the public involvement, in particular, it is important to keep the remaining issues and issues put forward for a full-scale activity. All activities during the implementation shall be kept in report, as well as the compilation of the final evaluation report.

4 POTENTIAL TDM MEASURES AND SOCIAL EXPERIMENTS IN ISTANBUL

Within the scope of İSTDM study, Smart Parking System Social Experiment and Traffic Cell System Social Experiment studies are made in the Historical Peninsula. In order to determine the further TDM measures to be implemented in the Historical Peninsula, the evaluation lists of TDM measures are created through surveys done among counterparts.

4.1 Potential TDM Measures in Istanbul

In order to determine the potential TDMs for the Historical Peninsula, TDMs around the world are examined and a list of 80 items (APP 7-5) is formed. It is then distributed among counterparts to be evaluated in 4 main criteria:

(i) encouraging transfer in between modes,

(ii) suppressing the demand,

(iii) distribution of demand,

(iv) effective use of road spaces

Table 4.1.1 TDM Measures Evaluation Table

Criteria / Score	User Benefit	Necessity	Fast Applicability	Ease of Decision
1	Not Beneficial	Not Necessary	Too Difficult	Too Difficult
2	Little Beneficial	Little Necessary	Difficult	Difficult
3	Partially Beneficial	Partially Necessary	Easy	Easy
4	Too Beneficial	Too Necessary	Too Easy	Too Easy
5	Too Much Beneficial	Too Much Necessary	Too Much Easy	Too Much Easy

Every TDM listed under 4 main is evaluated by scoring from 1 to 5 according to the following criteria: user benefit, necessity, fast application and ease of decision. 10 relevant experts from the Directorates of Transport Planning, Transport Coordination and Traffic participated to the evaluation period. After gathering all of the scorings, arithmetic averages are calculated by giving equal weight to each criterion. Evaluation of total average scores has given the ranking in Table 4.2. Improving comfort level in transportation, improving safety for public transportation users and pedestrians, providing multi-modal access guides, improving smart transportation systems get the highest scores according to the criteria mentioned in this order. In the context of evaluation ranking, smart parking system, bike & ride, improved coordination among the modes, priority of public transportation in city transit, improving stops and stations, reducing public transportation fares, developing more convenient methods for fare payment, implementation of improved rider information and marketing programs, encouraging and improving the current implementations of pedestrian and cycling transportation, integration of bike and transit systems, development of cycling facilities, implementing time of day car ban in specific roads and specific time periods, ban on trucks, changing the delivery times for freight vehicles to decrease congestion, increasing the capacity of existing transportation facilities, making campaigns to refrain from driving automobiles,

establishing high-occupancy vehicles lanes (HOV) shared the second rank with the same significance level according to the experts' opinions.

Table 4.1.2 Final List after the Evaluation

Ranking	TDM Measure	Average Total Point
1	Comfort improvements	18 points
	Improved Security for transit users and pedestrians	18 points
	Multi-Modal Access Guides	18 points
	Intelligent traffic information system (ITS)	18 points
2	Smart Parking	17 points
	Bike & Ride	17 points
	Improved coordination	17 points
	Transit Priority	17 points
	Improved Stops and Stations	17 points
	Lower fares and discounts, and more convenient fare payment	17 points
	Improved rider information and Marketing programs	17 points
	Pedestrian and Cycling Improvements	17 points
	Bike and Transit Integration	17 points
	Development of Cycling Facilities	17 points
	Time of day car ban	17 points
	Ban on trucks	17 points
	Increase Capacity of Existing Facilities	17 points
	Campaigns to refrain from driving automobiles	17 points
	High-occupancy vehicles lanes (HOV)	17 points
	Change freight delivery times to reduce congestion.	17 points
	Traffic calming (humps, median islands, speed limits, vehicle restrictions, warning signs, roundabouts, street closures, stop signs, Woonerf)	17 points
	Reduction of the on-street parking	17 points

4.2 Potential Social Experiment in Istanbul

The social experiment, as a pilot scheme of a highly invested TDM project, is conducted in order to measure productivity of the project in various aspects. Among the TDM methods determined as a result of the evaluations, social experiments of some subjects such as

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area/congestion pricing, prohibiting vehicles in specific time periods during the day, restricting the accessibility of freight vehicles in some areas can be implemented.

(1) Preliminary study about applying area/congestion pricing in Istanbul

Area pricing is considered to be an efficient solution for suppressing private vehicle uses and enhancing the attractiveness of public transport in a way that current infrastructure is optimally utilized.

There are five major elements to be taken into account when an area pricing measure is considered as one of TDM measures: Traffic control area, control time, pricing system, control exemption and subject of traffic demand analysis. Other issues to be taken into account to introduce the area pricing are;

a. Economic issues

- Legal reasoning of pricing
- Administrative affairs for payment control
- Rise of prices at the implementation areas

b. Technical issues

- Not only the transportation need of the frequent users of the region, but also those of the rare users should also be taken into consideration.
- Limited exceptions, simple payment methods and high technical accountability are necessary.
- There might be problems sourced by incompatibility of city wide and nationwide systems that cause disorder and extra cost for users as a result.
- The method for deciding limits of the implementation is very important.

c. System issues

- It is important that who, how, where and at which hours will be charged?
- Exceptional vehicles should be determined; taxis might request exception.
- Pricing hours will be decided based on what? It can be all day or at peak hours.
- The ones who want to avoid the pricing might use alternative roads and the congestion there might increase.
- It is concerned that one big vehicle can bring 10 cars into the region; how can this be solved?

d. Social issues

- Area/road pricing is against human rights.
- Area/road pricing violates free travel right.
- Usage of systems like GPS violates personal freedom.

Lessons learned from preceding practices to successfully implement the area pricing in Istanbul.

- Paying reduced fee by registering into automatic payment system,
- Paying online or via phone,

- Making discounts for registered vehicle fleets,
- Making high discounts for residents of the area,
- Making regulations for elderly people, handicapped people and vehicles with passage priority,
- Encouraging users for system membership,
- Persuading public about the benefits of the system and creating awareness,
- Easing the cost effect on land road users by reductions on fixed taxes and charges,
- Rehabilitation of public transport prior to or correspondently with implementation,
- Popularization of bicycle usage,
- To create an efficient and fast information processing infrastructure,
- Laws and regulations should be enacted in a way to prevent exploitations.

◆ Sample Cases

	London, GB	Singapore	Stockholm, Sweden
Type	Area Pricing	Area Pricing	Cordon Pricing
Since	February 2003	1975	August 2007
Purpose	Congestion mitigation Bus transit stimulation	Congestion mitigation	Congestion mitigation Bus transit stimulation
Area	Central London (Inside of inner ring road. 22km^2)	CBD (7.25km^2) and connecting highways	CBD (35km^2)
System	1) Purchase a permit sticker in advance 2) Number plate detected by CCTV camera 3) Check off reference database (capture rate 80%)	1) Purchase DSRC OBU (card reading device) and prepaid card. 2) Charge at ERP gates. (Capture rate 99% and easy to change charging amount by ITS)	1) Rent DSRC OBU (free) or register Number Plate 2) Charge at gates and via CCTV camera 3) Receive receipt later
Charge	10 pounds (US$15) per day (all types of vehicle) 90% off price for residents in inner ring road. Free on Sat & Sun. Bike, taxi and EV&PHV are free of charge	US$0.5-2.0 per time Changing charges by hour, place and car classification.	10-60 crone (US$1.5-8) per time Changing charges by hour Free on Sat & Sun Taxi and EV&PHV are free
Usage of incurred charges	Improving transit system. Developing pedestrian and bicycle environment	General budget	Developing road infrastructure inner and suburban areas
Effect	Reduction of congestion improving bus travel time and reliability	20% reduction of inflow traffic	Increase of bus and LRT passengers and reduction of CO_2, NOx & PM.

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a. Singapore [1]

Singapore is an island nation with land area of 250 square miles. Its population has grown from 2.3 million in 1975 to 4.5 million (3.5 million in the city) in 2005. The number of vehicles grew from 275,000 in 1975 to 750,000 (430,000 cars) in 1998. Daily trips increased from 2.7 million in 1980 to 7.7 million in 2000. Sixty-three percent of these use public transportation.

Figure 4.2.1 Electronic Road Pricing CBD Zone

Congestion pricing has been a major component of traffic management and emissions reduction in Singapore since 1975 when a charge of S$3.0 (~US$1.30) was introduced for vehicles entering the 2.0 square-mile central business area between 7:30 and 9:30 in the morning.

After extensive field tests during 1995-1997, Electronic Road Pricing (ERP) with charges varying by time of day, location and type of vehicle was introduced in 1998 for vehicles entering the central priced zone and at three points along three motorways. Subsequently, pricing has been extended to many more points on all motorways. As of 1998, the pricing program ("Electronic Road Pricing", or ERP) has been fully automated and charges are now collected electronically at more than 50 charge points spread across the city.

The charge period in the central restricted zones is in effect from 7:00AM to 7:00PM (Monday through Friday) and charge rates vary from zero to approximately US$2.00 per crossing at a charge point. Any vehicle traveling through a pricing location is required to have a functioning "In Vehicle Unit - IU" (a transponder) fitted on the dashboard with a "stored value smart card" inserted in the IU and with a sufficient monetary amount stored on it. Over the past thirty years, the expansion of the congestion pricing program has been accompanied by major reforms and expansion in vehicle taxation policies as well as significant enhancements to public transportation services including introduction and expansion of mass rapid transit, light rail and bus systems.

Mobility impacts shows that weekday traffic entering the RZ has dropped by 24 percent from 271,000 vehicles to 206,000 vehicles per day. This decline has resulted in average speeds within the RZ increasing from 30-35 KPH to 40-45 KPH.

Public acceptance to the area pricing shows that generally, people in Singapore reacted favorably to the pricing and accompanying package of improvements. Early skepticism has been addressed effectively via information and on-ground experience. It seems the public has come to accept and respect bold policy initiatives like pricing and have largely trusted the authorities as purveyors of effective public services.

[1] Source: Lesson Learned from Interantional Experience in Congestion Pricng. Federal Highway Administraion, US Department of Transport. URL: http://ops.fhwa.dot.gov/publications/fhwahop08047/02summ.htm

b. London, Great Britain [2]

The Congestion Charging Program commenced in February 2003. It covered the 8.0 square mile, heavily congested central business district. The charging zone represented less than 1.5% of the total area of Greater London with a population of about 7.0 million. Subsequently, the charging zone was extended to the west to cover additional 8.0 square miles including Westminster, Kensington and Chelsea.

Figure 4.2.2 The Central London Congestion Charging Zone

The overall program package included 40% increases in capacity of buses and train by 2011 starting immediately with expansion of bus service. The program entails a flat weekday fee (initially set at £5, the fee was raised to £8 in 2005) for vehicles crossing into, leaving, or traveling within the charging zone. The charging is effective between 7:00 AM and 6:30PM (modified in 2007 to 7:00-6:00). Numerous exemptions and discounts are allowed, including substantial discounts for residents of the pricing zone (90% discount). Buses, taxis, emergency vehicles, hybrid cars, and motorcycles are exempt. More than 650 closed-circuit cameras set up at the cordon and within the zone and moving vans police the zone, capturing live video images of the license plates of all vehicles. Any applicable daily charge must be paid for a vehicle that is on a public road in the Congestion Charge Zone during the charging period. Drivers may pay the charge via a website, by SMS text message, in shops equipped with a PayPoint, or by phone. The charge may be paid the day after at an increased cost of £10. Penalty for non-payment by the next day is £40 if paid after mail receipt of the notice, but goes up to £120 if not paid within four weeks.

Traffic adjusted rapidly to the introduction of pricing. After the first year of operation, traffic circulation within the charging zone was reduced by 15 percent during charging hours. The number of vehicles entering the charging zone was reduced by 18 percent. In addition to reduced traffic inside and outside the zone, traffic delays were cut by 25%. Travel speeds increased by 30% in the zone. Travel time reliability went up significantly. Bus reliability and journey time improved. Bus use increased by 40%. The shift in mode from car to bus was significantly more than the shift of cars to the ring road. Traffic entering the central London charging zone during charging hours in 2006 was 21 percent lower than before charging began in 2002. According to TfL, “as in previous years, available traffic indicators outside the central London charging zone have continued to

[2] ditto

indicate small background declines to overall traffic levels, with no evidence of significant adverse effects."

As CURACAO (2007) reports, "The level of acceptability of road user charging before the introduction was rather stable about 40%. This also holds true in comparison with other scenarios such as workplace commuter tax schemes. After the introduction acceptability has risen above 50%.

c. Stockholm, Sweden

The Stockholm congestion tax, also referred to as the Stockholm congestion charge, is a congestion pricing system implemented as a tax levied on most vehicles entering and exiting central Stockholm, Sweden. The congestion tax was implemented on a permanent basis on August 1, 2007, after a seven-month trial period between January 3, 2006 and July 31, 2006. The primary purpose of the congestion tax is to reduce traffic congestion and improve the environmental situation in central Stockholm. The funds collected will be used for new road constructions in and around Stockholm[3].

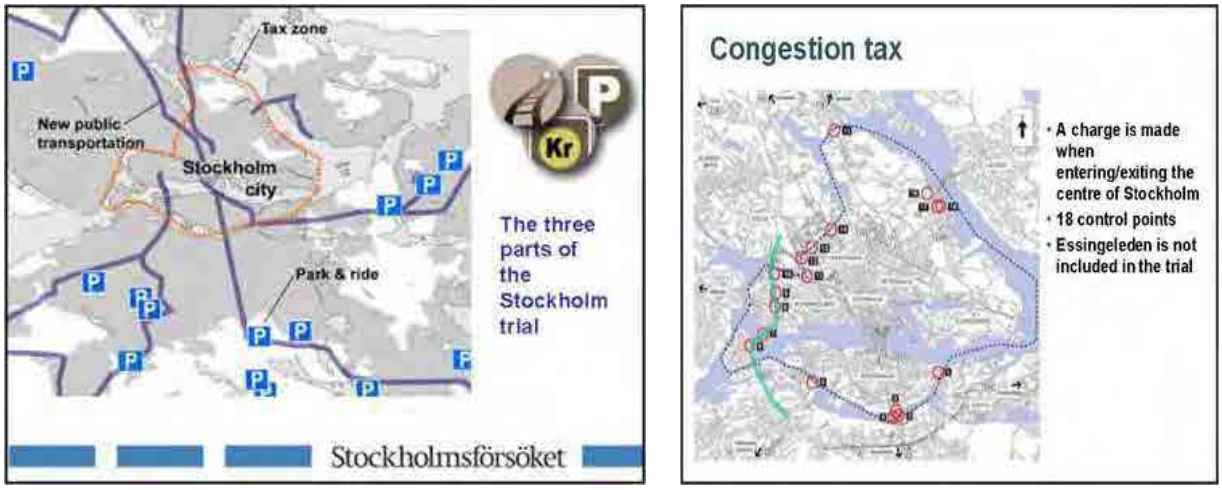


Figure 4.2.3 Park & Ride and Figure 4.2.4 Congestion Tax Area

Drivers were charged every time they entered in and out of the congestion zone. Their vehicle registration was filmed using high definition cameras and logged on a sophisticated database. Drivers were given up to 14 days to pay the tax; this could be done in a variety of ways – as a direct debit from individual accounts, or at shops. Payments were made after leaving the zone, and the taxation cost was linked to hours of entry. The amount of tax payable depends on what time of the day a motorist enters or exits the congestion tax area. There is no charge on Saturdays, Sundays, public holidays or the day before public holidays, nor during nights (18:30 – 06:29), nor during the month of July. The maximum amount of tax per vehicle per day is 60 SEK (9.47 USD). The congestion tax may be deducted from taxable income for both private individuals and businesses. Private individuals may deduct the congestion tax for business journeys, and for traveling between the home and workplace according to the usual rules of car cost

[3] ditto

deduction that if the distance is at least 5 kilometers and the time saved by traveling by own car compared to public transport is at least 2 hours per day. Businesses may deduct all congestion tax expenses.

A study of 5 years of operation showed a decrease in congestion, with some motorists turning to public transport. The congestion charging scheme met or exceeded expectations and project goal of 10-15% reduction in traffic. Overall traffic to and from the inner city declined by 10 to 15 percent (with declines ranging from 9 to 26 percent in different sectors). There was a 14% reduction in vehicle miles traveled in the charged zone and 1% reduction in VMT outside the zone. There was an increase in travel time reliability and traffic volumes on most congested roads dropped by 20-25%. Road safety improved. It appears that less than 50% of car users who gave up trips during the charge period shifted to transit. Few changed time of departure. No significant increase was observed in cycling, carpooling or telecommuting. Recent data show that the permanent charging program, reintroduced in 2007 August, appears to have reduced traffic by 18 percent. The proportion of exempted “green” cars has risen to 9%. Access to the city has again improved considerably with a reduction in travel times on city streets and approach roads.

However, the automatic number plate recognition has its shortcomings. Number plates from Finland and Lithuania have a similar format compared to Swedish number plates, with three letters and three digits. The system cannot see the difference, and a Swedish owner might falsely be charged. Also stolen and forged plates have caused false payment demand on innocent people. All vehicles are photographed so people who notice the false charging and object will be freed.[4]

Congestion pricing has been on the political and planning agenda in Stockholm for over twenty years. During this time, numerous feasibility studies were carried out and pricing proposals were modified and abandoned. The intervening period saw much public consultation, education and outreach effort. This period also saw worsening congestion, environmental degradation and transportation funding prospects. Furthermore, the success of the London pricing project, implemented in 2003, probably acted as a major catalyst in bringing together officials with diverse political leanings to try out pricing on a trial basis in 2006.

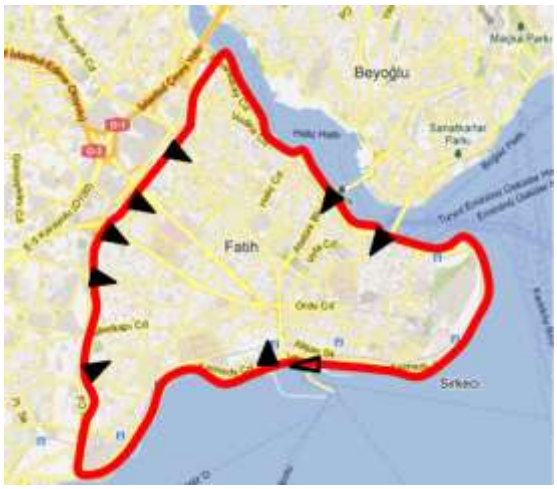
[4] Source: http://en.wikipedia.org/wiki/Stockholm_congestion_tax

(1) Exercise of planning an area pricing measure in the Historical Peninsula area.

a. Traffic Control Area

Three alternatives are studied as exercise for the area pricing measure in Istanbul.

Case A: Whole Historical Area



The area covers all the Historical Area, so all traffic vehicles crossing the Galata Bridge and Atatürk Bridge are charged with area pricing fee.

If two bridges are set to be charging gates, it is presumed that vehicles will detour to Çevre Yolu Bridge.

Issues to be raised in Case A are 1) whether Istanbul Çevre Yolu Bridge alone can support the demand from New City Area and 2) what measure should be taken to new Bosporus road tunnel, which directly entered the controlled area in the Historical area.

Case B: Control without Peripheral Roads

The covered area is same as Case A, but through traffic can be excluded from area pricing charge. Predicted issues are 1) there is a wide residential area in Fatih west to Atatürk Boulevard and vehicles coming from Asia side through Marmara tunnel and vehicles going to the north are forced to take detour roads.

Case C: Control without Peripheral Roads and Atatürk Boulevard

The third case is a control area without peripheral road and Atatürk Boulevard.

It allows vehicles from Asia side to take Atatürk Boulevard to go through western side, e.g. the Atatürk Airport, without being charged, so it gives more relief to the potential congestion to Çevre Yolu Bridge and options for through traffic.

Case D: Control without Peripheral Roads, Atatürk Boulevard, Turgut Özal Cd. and Adnan Menderes Boulevard

The last case shows a control area without peripheral roads, Atatürk Boulevard, Turgut Özal Cd. and Adnan Menderes Boulevard, which results in dividing the Historical area into three areas. This case also allows through traffic to pass from west to east and vice versa through Atatürk Boulevard and also allows vehicles to pass major roads in Fatih area without the charge. With this case, it still controls private vehicles not to enter the old historical areas where most tourism spots and residential areas are located, but keeps major roads connecting Asia side, western side and expressways open.

Figure 4.2.5 shows the comparison of controlled area among three cities, Istanbul, Singapore and Firenze in Italy. Compared to London (22km^2) and Stockholm (35km^2), the area under considered in Istanbul is much smaller, but approximately same and as twice larger as Firenze.

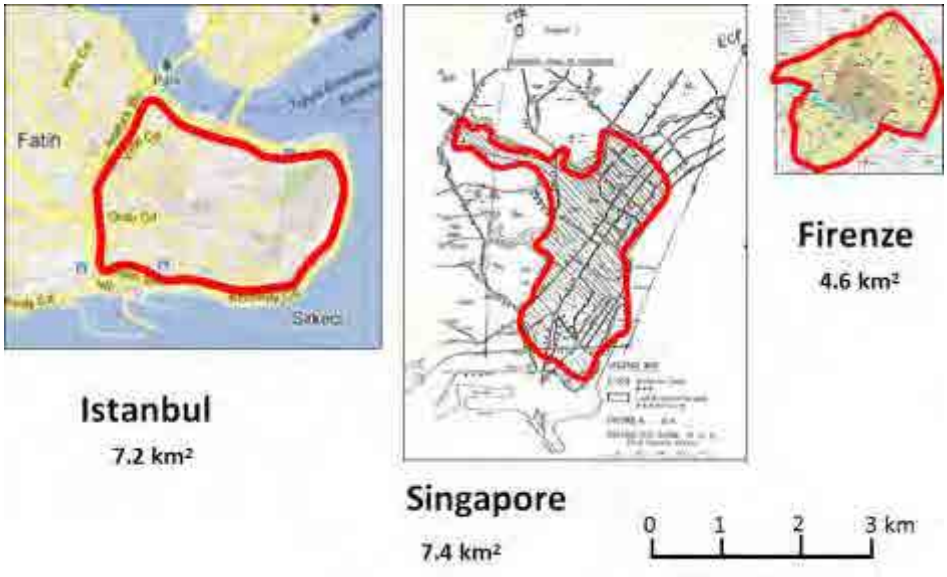


Figure 4.2.5 Comparison of Controlled Area

According to the discussion among the counterparts, it was agreed that Fatih area shall be the area where an area/congestion pricing is taken in place; but considering the traffic control area, it was suggested to start from a smaller area, such as Eminönü area, and later on expand to Fatih area, the Historical area. However, if the whole of Fatih area becomes a controlled area, traffic of Golden Horn will be completely restricted, which might deteriorate the principle objective, i.e. establishing more livable environments inside the area. Besides the traffic area, other concerns were raised, i.e. whether to charge residents who live in the traffic area, or whether to

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keep open the major roads, as Case C and D show. In case arterial roads are kept open, traffic will be concentrated on selected roads, causing an increase in traffic density.

Appendix-10 Survey Report of Intersection Traffic Count

“Junction Traffic Count Survey”

Field Report

March 29, 2013

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I. Objective

The traffic count survey is conducted at intersections in the target area for the second social experiment in order to obtain the necessary data for studying and analyzing vehicular traffic movement as well as for inputs of the micro simulation

II. Survey Date

- The study has been conducted between Dec 31, 2012 and March 30, 2013.
- Pre-study works have been completed between Dec 10, 2012 and Jan 11, 2013. In this process following issues have been undertaken: preparation and approval of detailed field study plan, preparatory meeting at IMM, revision and printing of survey forms, pre-survey field trip on Dec 12, 2013 for taking photos and drawing draft plans of junctions, training for the surveyors, preparation of ID badges for surveyors, taking necessary permissions from related authorities.
- The survey study has been conducted between Jan 1 and Feb 2, 2013. Study dates for each junction are listed in the table below.
- Survey form control, count, data entry and data checks have been completed between Feb 2 and 21, 2013.

Table 1. Junction Survey Dates

JUNCTION NO	WEEKDAY COUNT	WEEKEND COUNT
1	16.01.2013	19.01.2013
2	15.01.2013	12.01.2013
3	17.01.2013	02.02.2013
4	17.01.2013	02.02.2013
5	22.01.2013	26.01.2013
6	22.01.2013	26.01.2013
7	16.01.2013	19.01.2013
8	16.01.2013	19.01.2013
9	16.01.2013	19.01.2013
10	15.01.2013	12.01.2013
11	15.01.2013	12.01.2013
12	15.01.2013	12.01.2013
13	17.01.2013	02.02.2013
14	22.01.2013	02.02.2013
15	22.01.2013	02.02.2013
16	17.01.2013	19.01.2013

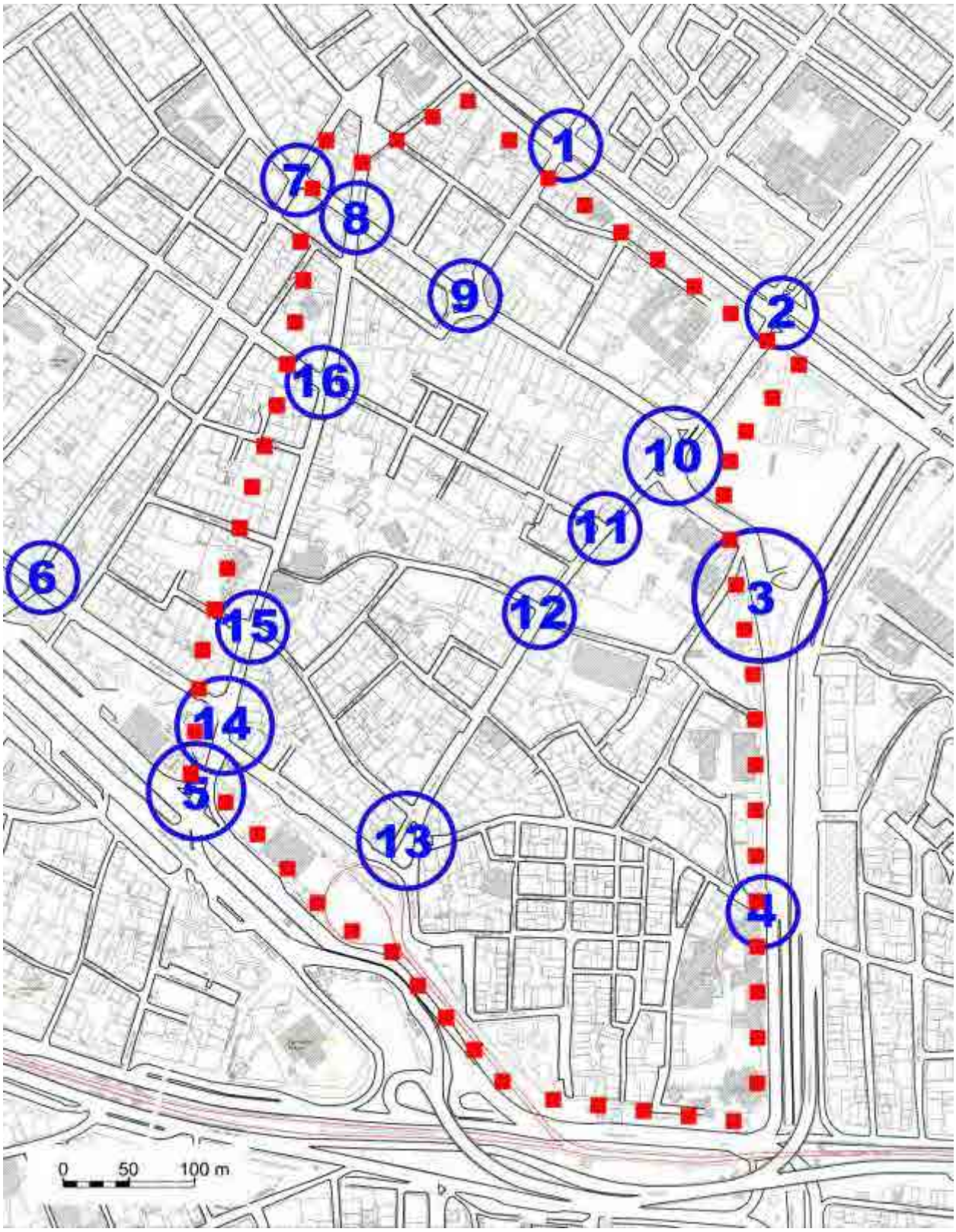

Figure 1. Junction Locations for Traffic Count

III. Survey Method

- The traffic count survey has been conducted at 16 intersections (3 intersections with signalization and 7 intersections located on the boundary of the target area) in the Sofular – Horhor area, Aksaray. The traffic has been recorded by vehicle type and turning movement (legal or illegal) for every 10 minute-intervals. Surveyed vehicles have been classified into passenger car, taxi, truck, minibus, motorcycle and other service vehicles. The survey forms are attached.
- In addition, pedestrians coming into or going out of each road have also been recorded for every 10 minute-intervals.
- The traffic count survey has been conducted on 1 weekday and Saturday, at total 2 days. Survey period is, 2 hours in the morning (7:00-9:00), 2 hours at noon (12:00-14:00) and 2 hours in the evening (17:00-19:00), at total 6 hours.

IV. Field Study Reports for Each Junction

Field Study Reports have been recorded daily. Therefore, the notes about junctions counted on the same day are given together.

Weekend traffic count, Jan 12, 2013 – Junctions 2, 10, 11 and 12

- Weather condition: There had been moderate rainfall all through the day. However, during noon traffic count, rainfall intensified.
- At junction 10, because of its wideness and the rainfall, observing the movements of the pedestrians has been quite problematic. In the evening period, because of the high density of pedestrians, rainfall and darkness, it has been challenging to follow the pedestrian movements coming in and out of flow direction 1.
- At junction 2, again, the wideness of the junction caused problems in pedestrian counts.
- At junctions 11 and 12, the tradesman and the residents of the area raised difficulties for the surveyors; however, the situation was handled by the team leaders.

Weekday traffic count, Jan 15, 2013 – Junctions 2, 10, 11 and 12

- Weather condition: There had been moderate rainfall all through the day. However, during evening traffic count, rainfall became violent.
- Because of the rainfall and cold, the surveyors had difficulty when counting pedestrians.

➢ **Weekday traffic count, Jan 16, 2013 – Junctions 1, 7, 8 and 9**

- Weather condition: In the morning, it was cold and dry. However at noon and in the evening there was light rain and wind.
- At junctions 7, 8 and 9, pedestrian traffic was quite dense. Especially in the evening, surveyors had difficulty to count pedestrians on account of rainfall and darkness.

➢ **Weekday traffic count, Jan 17, 2013 – Junctions 3, 4, 13 and 16**

- Weather condition: Survey periods were with mostly moderate rainfall and wind.
- In the evening, it has been difficult to record the movements of pedestrians.
- At junction 3, there was a dense pedestrian movement from flow 1 to 2 and vice versa. Since, these movements were out of the study boundaries, they were not recorded.
- At junction 4, pedestrians moving from flow 3 to flow 2 are not using regular sidewalks but a by-pass which is before the junction area. These movements are recorded to the extent of surveyors' observation.
- At junction 13, surveyors had difficulty recording pedestrian movement coming from flows 1 and 5 and going to 2 and 3, because of the high distance and dense traffic.
- Similarly again at junction 13, especially in evening period, it has been difficult to differentiate the movements of pedestrians coming from flow 3 and going to flow 1 or 5.
- At junction 16, heavy vehicle traffic was observed on flows 1 and 2.

➢ **Weekend traffic count, Jan 19, 2013 – Junctions 1, 7, 8, 9 and 16**

- Weather condition: Survey periods were cold with moderate rainfall.
- Presence of a private course center and hospital, increased the pedestrian density in certain hours, however this density was not as high at junction 9.

➢ **Weekday traffic count, Jan 22, 2013 – Junctions 5, 6, 14 and 15**

- Weather condition: Noon and evening periods were cold and dry, however during morning survey there was a heavy rainfall especially until 8 AM.
- At junctions 5, 6 and 14, particularly during evening survey, the pedestrian traffic density was quite high. At junction 14, surveyors had difficulty observing the pedestrian movement.
- At junction 5, there were a lot of vehicles coming from the both direction of Vatan Street to make a U-turn on Sofular Street and go back to Vatan Street.
- Because of the construction on Ahmediye Street, the vehicle traffic at junction 6 was only consisted of the t-park users. Moreover, the pedestrian access to Vatan Street is closed on account of Aksaray Square construction, so, the pedestrians are moving

towards Vatan Street before coming to the subject junction which raised difficulty to count.

- Ahmediye Street is also connected to junction 14, so there was no vehicle traffic to and from this flow direction at junctions 6 and 14. However, a dense pedestrian movement has been observed.
- Despite one-way regulation on Sofular Street, there has been observed a vast number of vehicles violating the regulation (junction 15), including official vehicles.
- Similarly, again at Junction 15, traffic flow is regulated as one-way from Ragip Bey Street to Horhor Street, however, there were several violations including official vehicles.
- During evening traffic counts, surveyors had difficulty to observe pedestrian movements, especially at Junction 14. Dark clothing for winter has also made it difficult to track pedestrians. This issue is valid for all junctions; however, the field of view was limited at junctions 13 and 14.
- Since junction 14 is not a regular shaped intersection, the surveyor on flow 2 missed to count some pedestrians, while trying to track other pedestrians. Therefore, it would be better to accept the number of pedestrians coming from junction 15 to 14 for flow 2 of junction 14.

➢ **Weekend traffic count, Jan 26, 2013 – Junctions 5, 6, 14 and 15**

- Weather condition: The weather was cold with scattered rainfall throughout the day.
- Especially in the evening, the pedestrian density was very high at junction 5, 6 and 14. At junction 14, the pedestrian count was difficult because of the reasons listed before.
- At junction 5, there were a lot of vehicles coming from the both direction of Vatan Street to make a U-turn on Sofular Street and go back to Vatan Street. These vehicles were not recorded since they are not entering the area.
- Despite one-way regulation on Sofular Street, there has been observed a vast number of vehicles violating the regulation (junction 15), including official vehicles.
- Similarly, again at Junction 15, traffic flow is regulated as one-way from Ragip Bey Street to Horhor Street, however, there were several violations including official vehicles.

➢ **Weekday traffic count, Jan 2, 2013 – Junctions 3, 4, 13, 14 and 15**

- Weather condition: It was cold with moderate rainfall throughout the day; however, at noon there was a violent rainfall.
- Since the intersection areas are wide and pedestrian movement is multi-directional, especially in the evening period, surveyors had difficulty in recording movements at junctions 13, 14 and 15.

Appendix 1. Traffic Count Form

APPENDIX 1. TRAFFIC COUNT FORM

HISTORICAL PENINSULA TRAFFIC COUNT FORM

JUNCTION NO : .....
DATE : .... /..... /2013
START TIME : .... :.....

JUNCTION NAME/LOCATION :_____
SURVEYOR NAME SURNAME:_____
END TIME : ..... : .....

WEATHER:.....
NO OF LANES: .....
SURVEY METHOD : JUNCTION TRAFFIC COUNT












PRIVATE CAR – TAXI	MINIBUS / PRIVATE BUS (OHO)	SERVICE VEHICLE	SMALL TRUCK	TRUCK	INTERCITY VEHICLE

	FLOW NO	PASSENGER VEHICLE		TOPLU TAŞIMA ARAÇLARI				SERVICE VEHICLES		FREIGHT VEHICLE		INTERCITY		MOTORCYCLE	PEDESTRIAN
		PRIVATE CAR	TAXI	BUS SINGLE	BUS ARTI-CULATED	MİNİ-BUS	DOLMUS	MINIBUS / MİDİBUS	BUS	SMALL TRUCK/ VAN	TRUCK	MINIBUS/ MIDIBUS	BUS		

Appendix 2. Junction Layout Plans

JUNCTION 1	FLOW NO	STREET NAME
	1	MACAR KARDEŞLER
	2	MACAR KARDEŞLER
	3	KIZTAŞI
	4	KIZTAŞI

JUNCTION 2	FLOW NO	STREET NAME
	1	HORHOR
	2	ITFAIYE
	3	MACAR KARDESLER
	4	MACAR KARDESLER

JUNCTION 3	FLOW NO	STREET NAME
	1	ATATURK
	2	ATATURK
	3	KAVALALI
	4	LUTFU EFENDI

*AKIM = FLOW

JUNCTION 4	FLOW NO	STREET NAME
	1	ATATURK
	2	ATATURK
	3	CINGIRAKLI BOSTAN
	4	ORUCGAZI

JUNCTION 5	FLOW NO	STREET NAME
	1	VATAN
	2	SOFULAR
	3	VATAN

JUNCTION 6	FLOW NO	STREET NAME
	1	AHMEDIYE
	2	AHMEDIYE
	3	HAVLUCU

*AKIM = FLOW

JUNCTION 7	FLOW NO	STREET NAME
	1	SARIGUZEL
	2	KIZANLIK
	3	FEYZULLAH EFENDI
	4	FEYZULLAH EFENDI

JUNCTION 8	FLOW NO	STREET NAME
	1	KIZANLIK
	2	KIZANLIK
	3	SOFULAR
	4	SOFULAR

JUNCTION 9	FLOW NO	STREET NAME
	1	KIZANLIK
	2	DOLAP
	3	KIZTASI
	4	YESIL TEKKE

*AKIM = FLOW

JUNCTION 10	FLOW NO	STREET NAME
	1	HORHOR
	2	HORHOR
	3	DOLAP
	4	KAVALALI

JUNCTION 11	FLOW NO	STREET NAME
	1	HORHOR
	2	HORHOR
	3	YESIL TEKKE

JUNCTION 12	FLOW NO	STREET NAME
	1	HORHOR
	2	HORHOR
	3	MOLLA HUSREV
	4	KIRMA TULUMBA

12

*AKIM = FLOW

JUNCTION 13	FLOW NO	STREET NAME
	1	SIMITCI SAKIR
	2	HORHOR
	3	RAGIPBEY
	4	CINGIRAKLI BOSTAN
	5	IMAM MURAT

JUNCTION 14	FLOW NO	STREET NAME
	1	SOFULAR
	2	SOFULAR
	3	AHMEDIYE
	4	SIMITCI SAKIR

*AKIM = FLOW

JUNCTION 15	FLOW NO	STREET NAME
	1	SOFULAR
	2	SOFULAR
	3	HATTAT FEHMI
	4	RAGIPBEY

JUNCTION 16	FLOW NO	STREET NAME
	1	SOFULAR
	2	SOFULAR
	3	DEGNEKCI
	4	YESIL TEKKE

*AKIM = FLOW

Appendix-11 Smart Parking System Field Survey Report

“Smart Parking System Social Experiment Project”

Field Survey Report

March 29, 2013

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I. Aim of The Study

Smart Parking System aims to make the parking easier without seeking or waiting for a parking place via smart phone application and information boards. Istanbul Metropolitan Municipality (IMM) and JICA Consultancy team decided to implement the 1st Social Experiment 'Smart Parking System' in January and February, 2013 in coordination with ISPARK and TAV-G.

Social Experiment Research Study is a micro scale preliminary work that evaluates the influence quantity parameters (statistical variability) which helps to choose feasibility, time, cost, adverse events and suitable sample size. It is also a previous study to develop the work plan of a full-scale research project. The aim of the study is gathering the data to evaluate the applicability and the effects of the social experiment.

II. Background of the Research

- The study is completed between the dates of 31.12.2012-30.03.2013.
- Preparation works is completed between the dates of 10.12.2012-11.01.2013.

III. Methodology

The study is composed of 3 researches indicated below:

- Surveys before the Social Experiment

The aim of the survey is to acquire the decisions of parking lot users about present parking services and realize their behaviors during the implementation of Smart Parking System.

- Surveys during the Social Experiment

The aim of the survey is gathering the data from users to evaluate the applicability and the effects of the social experiment.

- Observation of Illegal Parking before and during the Social Experiment

The aim of the study is gathering the data about illegal parking around the social experiment area including the numbers, parking time, vehicle type etc.

IV. Field Survey Report

1- Field Survey before the Experiment (Parking lot surveys and Illegal Parking Observation Studies)

- Several meetings are organized with JICA team.
- 20 pilot surveys are conducted in Gedikpasa ISPARK Parking lot on 02.01.2013.
- As a result of pilot surveys, question forms are revised, question statements are simplified and the order of the questions is changed.
- Revised question forms are shared with IMM on 03.01.2013 and after their approval they are sent for the press.
- Name tags are designed for the staff of field survey and approved by the IMM.

A) Survey Studies in Gedikpasa Ispark Parking lots on Saturday, 04.01.2013 Saturday

- Project training is completed by 18 surveyor candidates in Ispark Gedikpasa Parking lot on 04.01.2013.
- The field survey is completed on Saturday, 05.01.2013 with 16 surveyors.
- Lunch break is organized as shifts for the staff between (11:00-12:00 and 12:00-13:00). Thus, surveyors were always in the parking lot.
- The subscribers of the parking lots are omitted.
- The survey is conducted by distributing 10 surveyors to different floors. The surveyors are controlled periodically.
- The survey method is applied till the afternoon with each 5th vehicle comes to the parking lot. Since the number of interviews was insufficient, the method of interviews is changed at 13.30 and the survey is conducted with each vehicle except the subscribers by the approval of IMM & JICA. The survey time is extended till 16.30 because of the inadequate number of interviews.
- The entrance of the Mithat Paşa Street was closed because of the construction works. The parking lot officer indicated that this situation has affected the users negatively and the number of parking lot users is decreased during the construction period.
- Illegal parking field survey is conducted through the defined routes by IMM & JICA on Mithatpaşa Street, Tiyatro Street and Tatlı Kuyu Street.

- Illegal parking field survey is conducted between 07:30-09:30 / 12:00-14:00 / 17:00- 19:00 with the method of 6 hours observation per day.
- During the Illegal parking field survey the data about license plate, number of vehicles, parking time, vehicle type etc. are gathered.
- Illegal parking field survey is completed in 4 days including 2 days of surveys on Saturday and Sunday.
- The entire field survey is conducted under the supervision of Rasyonel Research officers, Mustafa Narcı and Tamer Coşar.
- In the context of illegal parking surveys, 68 surveys are conducted on Saturday and 99 surveys are conducted on Monday. In total 167 interviews are completed.

B) Survey Studies in Gedikpaşa Ispark Parking lots on Monday, 07.01.2013

- The field survey is completed on Monday, 07.01.2013 with 14 surveyors.
- The survey method of interviewing every 5^{th} vehicle that comes to the parking lot is applied again during morning hours. However, since the number of interviews was insufficient, the method of interviews is changed and the survey is conducted with each vehicle except the subscribers by the approval of IMM & JICA
- It is observed that the users of parking lot are decreased because of snowfall.
- The working conditions of illegal parking observation studies became difficult because of snowfall.
- During the illegal parking field survey, the north end of Mithatpasa Street is opened for the vehicle entry on Monday, 07.01.2013 but, the drivers are cautioned and some of the vehicles are moved by the wrecker of municipal police. Therefore, the number of illegal parkers is decreased and the target number of surveys could not complete.
- The pictures are taken during the field survey and they are sent to the institution by email.

The characteristics of Gedikpasa Parking lot;

- According to the information of parking lot officer, 10 surveyors are working in the parking lot.
- The parking lot is 10-storey high, including 3 cellars, first floor and 6 floors over ground. There are A and B sections in each floor and the capacity is 617 vehicles.
- There are 265 subscribers of the parking lot and it is specified that the demand of the subscribers cannot be covered.
- The vehicle capacity of Gedikpasa Parking lot is indicated below. The first floor is allocated only for minibuses.

The number of surveys conducted on the field before the experiment;

	05.01.2013	07.01.2013	
	Saturday	Monday	Total
Illegal parking observation	√	√	√
Illegal parking survey	68	99	**167**
Parking lot user survey	189	207	**396**

2- Field Survey during the Experiment (Parking lot surveys and Illegal Parking Observation Studies)

- Rasyonel Research officers visited 4 parking lots on Friday, 22.02.2013. During the visiting, parking lot officers are informed about the study and the data about the capacity, occupancy, number of subscribers, and peak hours of the parking lots are gathered.
- The question forms are revised after the experiment and shared with IMM. After the approval of IMM, the forms are sent for the press.
- The surveyors who are experienced the field surveys before the experiment are collected again and new trainings are completed.
- Gedikpasa Ispark Parking lot field surveys is completed on Saturday, 16.02.2013 and Monday, 18.02.2013.
- The field surveys of Fatih Katlı Ispark, Vatan Street Migros Ispark, Muratpasa T-Park and Iskenderpasa T-Park parking lots are completed on Saturday, 23.02.2013 and Monday, 25.02.2013.

- Illegal parking observation field study is completed in 4 days including 2 days of surveys on Saturday and Monday.
- In the context of illegal parking survey, 94 surveys are completed on Saturday and 123 surveys are completed on Monday. In total 217 surveys are completed.
- Working hours:
  The study started at 07:30 and continued till 17:00 to reach the intended survey numbers (It is continued till 17:30 on Saturday).
- There was no vehicle entrance with ticket (except the subscribers) to all parking lots except Gedikpasa parking lot till 08.30 on Saturday.
- The interviews were carried out with every user (except subscribers), however the intended amount of surveys were not completed during these two days (except Migros and Fatih Katli Parking lots).

I. Gedikpasa Ispark Parking lot

- 211 interviews are conducted on Saturday, 16.02.2013.
- 222 interviews are conducted on Monday, 18.02.2013.

II. Fatih Katli Ispark Parking lot

- It is two leveled, has the capacity of 110 vehicles and there are 62 subscribers.
- The parking lot officers indicated that the parking lot is generally vacant on Saturdays but, if there is a conference and/or wedding ceremony in Ali Emiri Cultural Center, the car congestion starts since in the afternoon.
- There was no wedding ceremony on Saturday, only there was a conference at 14:00 but, it could not reach to the intended density.
- The interviews are carried out with all the drivers who “enter with ticket” on Saturday, 23.02.2013.
- The targeted number of surveys was completed on Monday, 25.02.2013.

III. Vatan Street, Migros Ispark Parking lot

- Vatan Migros Parking lot is an open parking lot which has the capacity of 150 vehicles and has 15 subscribers.
- The officers determined that the congestion starts on Saturday with the opening of Migros at 09.00 and the parking lot becomes full during the peak time in the afternoon between 12:00-16:00.
- In other words, there was no problem about reaching the intended number of surveys, in fact, there were more surveys conducted.

IV. Muratpaşa T-Park Parking lot

- Muratpaşa T-Park is 4-storey, underground parking lot and has the capacity of 236 vehicles with 140 subscribers.
- Officers indicated that the parking lot is busy on Saturdays between 10:00-15:00.
- On Saturday, between 07:30-17:00, the interviews are carried out with 33 of the 44 drivers who enter with ticket. The rest were the people who were in hurry, came for the hospital or funeral and did not accept to be interviewed.
- The number of vehicles which enter to the parking lot with ticket was around 30 at designated hours on Monday, 25.02.2013 and the interviews are carried out with 27 of them.

V. İskenderpaşa T-Park Parking lot

- İskenderpaşa T-Park is an underground parking lot with three levels, 225 vehicle capacity and 150 subscribers.
- There is congestion especially on Saturdays and weekdays in the afternoon because of the business in the area.
- The officers specified that, since there is road construction in the entrance of the parking lot, the vehicle traffic is affected negatively especially on Saturdays and Mondays.
- It is observed that the congestion on Sofular Street and one-way separation for the car entry on Simitci Sakir Street caused a decrease on parking lot demand.

- The number of vehicles that enter to the parking lot with ticket was 40 on Saturday and 35 on Monday. Except from the drivers who reject to be interviewed, the interviews are carried out with the all people who entered with ticket.

The number of surveys conducted on the field after the experiment;

	16.02.2013	18.02.2013	23.02.2013	25.02.2013	
	Saturday	Monday	Saturday	Monday	Total
Gedikpasa ISPARK	211	222			433
Illegal parking survey	94	123			217
Vatan Street Migros ISPARK			117	85	202
Fatih Katli ISPARK			36	83	119
Muratpasa T-Park			33	27	60
Iskenderpasa T-Park			36	27	63
					1094

Appendix 1. Interview survey form for parking lot users before the social experiment

SMART PARKING SYSTEM – EVALUATION STUDY

Car park code: ☐☐☐ Date: ☐☐ / ☐☐ / ☐☐ Time: ☐☐ : ☐☐

Q1. Sex: Female ☐ Male ☐ Q2. Age: **1**) 18-30 **2**) 31-45 **3**) 45+

Q3. What kind of mobile phone are you using?

1. General Mobile Phone	2. Smart Phone	3. Others

Q4. From where did you come to this parking lot and where will you go after you have parked your car here?

	ORIGIN	**DESTINATION**
CITY		
DISTRICT		
NEIGHBORHOOD		
STREET		
LANDMARK		

Q5. How long did you travel to come here? (in-vehicle, access & transfer time included, from origin to destination) ☐ min.

Q6. How long will it take to access your destination from this car park? ☐ min.

Q7. In order to access your destination point from this car park, which transportation modes will you use? (Multiple answers allowed.)

1. On foot only	2. Private car	3. Taxi	4. Service Bus
5. Dolmus	6. Minibus	7. Bus	8. Railway
9. Sea way	10. Other……		

Q8. What is the purpose of your trip?

1. Home	2. Work	3. School	4. Work related
5. Shopping	6. Social / Sport / Entertainment	7. Hospital / Health	8. Sightseeing
9. Out of city	10. Other……..		

Q9. How often do you come to Fatih district?

1. Always (5-7 days a week)	4. Rarely (1-2 a month)
2. Very often (3-4 days a week)	5. Very rarely
3. Often (1-2 days a week)	

Q10. How often do you use this car park?

1. Always (5-7 days a week)	4. Rarely (1-2 a month)
2. Very often (3-4 days a week)	5. Very rarely
3. Often (1-2 days a week)	6. First time

Q11. Before having parked in this car park have you cruised seeking for a parking place?
If yes, how long did it take to find?

Yes ☐ No ☐ Duration: ☐ min

Q12. How long did you wait to park since you arrived at this parking lot? … … min.

Q13. How long will you park your car in this car park? ☐ hr ☐ min

Q14. Why did you choose this car park?
Please choose 3 reasons from the following items and rank them in order of importance.

1. It is near my destination	4. Cost is affordable
2. There are always available parking spaces	5. It is easily accessed
3. It is near a station/stop	6. It is safe

1.	2.	3.

Smart Parking System

Q15. The Smart Parking System plans to inform users about car park locations and real-time vacancy information by SMS, smart phone application and information boards.
Would you use this system?

1.Definitely	2. Very probably	3. Not sure	4. Probably not	5. Definitely not

Q16. Please provide your opinions about the Smart Parking System services listed below.

Q16a. Getting information by SMS

1.Very useful	2. Useful	3. Not sure	4. Useless	5. Very useless

Q16b. Getting information through a smart phone application

1.Very useful	2. Useful	3. Not sure	4. Useless	5. Very useless

Q16c. Being directed by information boards installed on street

1.Very useful	2. Useful	3. Not sure	4. Useless	5. Very useless

Q16d. Operation of shuttle buses to major locations from the car park (free, discounted?)

1.Very useful	2. Useful	3. Not sure	4. Useless	5. Very useless

Responder Name Surname: …….. Tel: ……

Surveyor Name Surname :……..

Appendix 2. Interview survey form for parking lot users before the social experiment

SMART PARKING SYSTEM – EVALUATION STUDY

Car park code: ☐☐☐ Date: ☐☐ / ☐☐ / ☐☐ Time: ☐☐ : ☐☐

Q1. Sex: Female ☐ Male ☐ Q2. Age: 1) 18-30 2) 31-45 3) 45+

Q3. What kind of mobile phone are you using?

1. General Mobile Phone	2. Smart Phone	3. Others

Q4. From where did you come to this parking lot and where will you go after you have parked your car here?

	ORIGIN	DESTINATION
CITY		
DISTRICT		
NEIGHBORHOOD		
STREET		
LANDMARK		

Q5. From your origin point, how long did it take until you have arrived in this car park? ☐ min.

Q6. How long will it take to access your destination from this car park? ☐ min.

Q7. In order to access your destination point from this car park, which transportation modes will you use? (Multiple answers allowed.)

1. Walking only	2. Private car	3. Taxi	4. Service Bus
5. Dolmus	6. Minibus	7. Bus	8. Railway
9. Sea way	10. Car park's shuttle bus		11. Other……

Q8. What is the purpose of your trip?

1 . Home	2. Work	3. School	4. Work related
5. Shopping	6. Social / Sport / Entertainment	7. Hospital / Health	8. Sightseeing
9. Out of city	10. Other……..		

Q9. How often do you come to Fatih district?

1. Always (5-7 days a week)	4. Rarely (1-2 a month)
2. Very often (3-4 days a week)	5. Very rarely
3. Often (1-2 days a week)	

Q10. How often do you use this car park?

1. Always (5-7 days a week)	4. Rarely (1-2 a month)
2. Very often (3-4 days a week)	5. Very rarely
3. Often (1-2 days a week)	6. First time

Q11. Before having parked in this car park have you cruised seeking for parking place?
If yes, how long did it take to find?
Yes ☐ No ☐ Duration: ☐ min.

Q12. How long did you wait to park since you arrived at this parking lot? ☐ min.

Q13. How long will you park your car in this car park? ☐ hr ☐ min.

Q14. Why did you choose this car park?
Please choose 3 reasons from the following items and rank them in order of importance.

1. It is near my destination	5. It is easily accessed
2. There are always available parking spaces	6. It is safe
3. It is near a station/stop	7. This car park has a shuttle service
4. Cost is affordable	8. This car park is included in the SPS

1.	2.	3.

Smart Parking System

Q15. Have you been informed about the Smart Parking System? Yes ☐ No ☐

If Yes, ask Q16. If No, finish the survey.

Q16. How did you know the Smart Parking System?

Newspaper ☐ Television ☐ Internet ☐ Information Boards ☐

Radio ☐ Traffic Density Map ☐ Others ☐

Q17. Which of the following items describes your condition the best?

1	I used this car park **regardless** of the Smart Parking System

2	I used this car park **because of** the Smart Parking System, before:	
	a	I parked by roadside for the same trip
	b	I parked in other car parks for the same trip
	c	I often parked here for the same trip
	d	I am a newcomer

If answered "2", ask Q18. If answered "1", ask Q22.

Q18. Which criteria below affected your choice of this car park?
(Multiple answers allowed.)

1. I was directed by the Information Boards
2. I was directed by the smart phone application
3. Others

Q19. Which means of transportation had you used to access your destination from this car park before the Smart Parking System was introduced? (Multiple answers allowed.)

1. On foot only	2. Private car	3. Taxi	4. Service Bus
5. Dolmuş	6. Minibus	7. Bus	8. Railway
9. Sea way	10. Other……		

Q20. Before using the Smart Parking System, how long did this journey used to take? (in-vehicle access &transfer times included, from origin to destination) [ ] min

Q22. Please share your comment on following statements.

	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree
1. Smart Parking System campaigns had an impact affect me to choose this car park.	5	4	3	2	1
2. Smart Parking System can easily be understood.	5	4	3	2	1
3. There is a significant reduction in my travel time	5	4	3	2	1
4. I would continue to use the Smart Parking System, if it expands to whole Fatih district or İstanbul.	5	4	3	2	1
5. If the mobile phone services are charged in the future, I would continue using it.	5	4	3	2	1
6. I was satisfied with the shuttle service.	5	4	3	2	1
7. If the shuttle bus is charged in the future, I would continue using it.	5	4	3	2	1
8. If transfer to public transportation is eased in terms of fee and access, I would use public transportation instead of shuttle bus.	5	4	3	2	1
9. The information in the system was correct.	5	4	3	2	1
10. The car parks in the system are enough.	5	4	3	2	1
11. Information boards are satisfactory.	5	4	3	2	1
12. The frequency of system's update is sufficient.	5	4	3	2	1

Q23. Your comments about the project, positive or negative, are welcome:

……

……

Responder name/surname…….. Telephone no…….
Surveyor name/surname…….

Appendix 3. Illegal Parking Observation Form

SMART PARKING SYSTEM-EVALUATION SURVEY

Area Code ☐☐☐ Date ☐☐ / ☐☐ / ☐☐ Time ☐☐ : ☐☐ - ☐☐ : ☐☐

Street/Road Code ☐☐☐ Surveyor Name ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

License Plate	Type	000	030	060	090	120

Appendix 4. Interview survey form for illegal parkers before the social experiment

SMART PARKING SYSTEM – EVALUATION STUDY

Car park code: ☐☐☐ Date: ☐☐ / ☐☐ / ☐☐ Time: ☐☐ : ☐☐

Q1. Sex: Female ☐ Male ☐ Q2. Age: **1**) 18-30 **2**) 31-45 **3**) 45+

Q3. What kind of mobile phone are you using?

1. General mobile phone	2. Smart Phone	3. Others

Q4. From where did you come here and where will you go after you have parked your car here?

	ORIGIN	DESTINATION
CITY		
DISTRICT		
NEIGHBORHOOD		
STREET		
LANDMARK		

Q5. How long did you travel to come here?
(in-vehicle, access & transfer times included, from origin to destination) ☐ min.

Q6. How long will it take to access your destination from here? ☐ min.

Q7. In order to access your destination point from here, which transportation modes will you use?
(Multiple answers allowed.)

1. On foot only	2. Private car	3. Taxi	4. Service Bus
5. Dolmus	6. Minibus	7. Bus	8. Railway
9. Sea way	10. Other……		

Q8. What is the purpose of your trip?

1 . Home	2. Work	3. School	4. Work related
5. Shopping	6. Social / Sport / Entertainment	7. Hospital / Health	8. Sightseeing
9. Out of city	10. Other……..		

Q9. How often do you come to Fatih district?

1. Always (5-7 days a week)	4. Rarely (1-2 a month)
2. Very often (3-4 days a week)	5. Very rarely
3. Often (1-2 days a week)	

Q10. How often do you park at this spot?

1. Always (5-7 days a week)	4. Rarely (1-2 a month)
2. Very often (3-4 days a week)	5. Very rarely
3. Often (1-2 days a week)	6. First time

Q11. Before having parked here, have you cruised seeking for a parking place?
If yes, how long did it take to find?

Yes ☐ No ☐ Duration: ☐ min.

Q12. Why did you park here?
Please choose 3 reasons from the following items and rank them in order of importance.

1. It is near my destination	4. Public/private parking lots are full
2. There are always available parking spaces	5. Cost is high to park in public/private parking lots
3. It is near a station/stop	6. Others

1.	2.	3.

Q13. How long will you park your car here? ☐ hr ☐ min.

Smart Parking System

Q14. The Smart Parking System plans to inform users about car park locations and real-time vacancy information by SMS, smart phone application and information boards.
Would you use this system?

1. Definitely	2. Probably	3. Not sure	4. Probably not	5. Definitely not

Q15. Please provide your opinions about the Smart Parking System services listed below.

Q15a. Getting information by SMS

1.Very useful	2. Useful	3. Not sure	4. Useless	5. Very useless

Q15b. Getting information through a smart phone application

1.Very useful	2. Useful	3. Not sure	4. Useless	5. Very useless

Q15c. Being directed by information boards installed on street

1.Very useful	2. Useful	3. Not sure	4. Useless	5. Very useless

Q15d. Operation of shuttle buses to important locations from the car park (free, discounted?)

1.Very useful	2. Useful	3. Not sure	4. Useless	5. Very useless

Responder Name Surname: …….. Tel:
……

Surveyor Name Surname:……..

Appendix 5. Interview survey form for illegal parkers during the social experiment

SMART PARKING SYSTEM – EVALUATION STUDY

Car park code: ☐☐☐ Date: ☐☐ / ☐☐ / ☐☐ Time: ☐☐ : ☐☐

Q1. Sex: Female ☐ Male ☐ Q2. Age: 1) 18-30 2) 31-45 3) 45+

Q3. What kind of mobile phone are you using?

1. General mobile phone	2. Smart Phone	3. Others

Q4. From where did you come to this parking space and where will you go **after you have parked** your car here?

	ORIGIN	DESTINATION
CITY		
DISTRICT		
NEIGHBORHOOD		
STREET		
LANDMARK		

Q5. From your origin point, how long did it take until you have arrived in this parking space ? ☐ min.

Q6. How long will it take to access your destination from here? ☐ min.

Q7. In order to access your destination point from here, which transportation modes will you use? (Multiple answers allowed.)

1. On foot only	2. Private car	3. Taxi	4. Service Bus
5. Dolmus	6. Minibus	7. Bus	8. Railway
9. Sea way	10. Other……		

Q8. What is the purpose of your trip?

1 . Home	2. Work	3. School	4. Work related
5. Shopping	6. Social / Sport / Entertainment	7. Hospital / Health	8. Sightseeing
9. Out of city	10. Other……..		

Q9. How often do you come to Fatih district?

1. Always (5-7 days a week)	4. Rarely (1-2 a month)
2. Very often (3-4 days a week)	5. Very rarely
3. Often (1-2 days a week)	

Q10. How often do you park here?

1. Always (5-7 days a week)	4. Rarely (1-2 a month)
2. Very often (3-4 days a week)	5. Very rarely
3. Often (1-2 days a week)	6. First time

Q11. Before having parked here, have you cruised seeking for a parking place?
If yes, how long did it take to find? Yes ☐ No ☐ Duration: ☐ min.

Q12. Why did you park here?
Please choose 3 reasons from the following items and rank them in order of importance.

1. It is near my destination	4. Public/private parking lots are full
2. There are always available parking spaces	5. Cost is high to park in public/private parking lots
3. It is near a station/stop	6. Others

1.	2.	3.

Q13. How long will you park your car here? ☐ hr ☐ min.

Smart Parking System

Q14. Are you familiar with the Smart Parking System which has been started primarily at 5 car parks in Fatih district? Yes ☐ No ☐

If Yes, ask Q15. If No, finish the survey.

Q15. How did you know the Smart Parking System?

Newspaper ☐ Television ☐ Internet ☐ Information Boards

Radio ☐ Traffic Density Map ☐ Others ☐

Q16. Have you ever used the Smart Parking System before? Yes ☐ No ☐ ***If Yes, ask Q17. If No, finish the survey.***

Q17. Please share your comment on following statement.

	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree
1. Smart Parking System campaigns had an impact affect me to choose this car park.	5	4	3	2	1
2. Smart Parking System can easily be understood.	5	4	3	2	1
3. There is a significant reduction in my travel time	5	4	3	2	1
4. I would continue to use the Smart Parking System, if it expands to whole Fatih district or İstanbul.	5	4	3	2	1
5. If the mobile phone services are charged in the future, I would continue using it.	5	4	3	2	1
6. I was satisfied with the shuttle service.	5	4	3	2	1
7. If the shuttle bus is charged in the future, I would continue using it.	5	4	3	2	1
8. If transfer to public transportation is eased in terms of fee and access, I would use public transportation instead of shuttle bus.	5	4	3	2	1
9. The information in the system was correct.	5	4	3	2	1
10. The car parks in the system are enough.	5	4	3	2	1
11. Information boards are satisfactory.	5	4	3	2	1
12. The frequency of system's update is sufficient.	5	4	3	2	1

Q18. Your comments about the project, positive or negative, are welcome:

……

……

……

Responder name/surname…….. Telephone no…….

Surveyor name/surname…….

Appendix-12 Minutes of Consulting Meeting on Draft Final Report

Consultation Meeting on Draft Final Report of JICA iSTDM Project

Date: June 13, 2014

Venue: Directorate of Transportation Planning Manager's Office

Subject: Discussions on Findings/Proposals in JICA iSTDM Draft Final Report

***

1. Presentations by JICA Team

JICA Team Leader, Katsuhide Nagayama, opened the meeting with a brief explanation of the Draft Final Report presentation.

In the first part of the presentation, Deputy Team Leader, Tamaoki Watanabe, explained the overall structure of the report. At the end of his presentation 5 copies of 1st volume (iSTDM - technical transfer project) and 2nd volume (Technical Report for the Urgent Implementation Plan for Yenikapı and Sirkeci Station) of the draft final report were handed to Counterparts for review (English).

Before his presentation, Traffic Management Planner, Tetsuo Wakui, added that JICA HQ has requested modification on the draft report, so minor changes would be made in the report.

As the second and third part of the presentation, Mr. Wakui explained transport demand changes by rail-transit development and urgent projects for bus rerouting in the historical area.

Fourth part about urgent improvement plan of the Yenikapi station and Sirkeci station was presented by the Transport Planner, Ken Kumazawa, and the final part about the next step of the project was explained by the team leader.

2. Discussions

Following the presentations, the meeting was opened for discussions and the following are noted:

Ms. Nesligül Ünal reminded the discussion with JICA Team made on May 22, 2014 that the recommendation of a monumental circular pedestrian overpass in Sirkeci is not appropriate, because the location, Sirkeci, is a part of the Historical Area, therefore, she expresses an apprehension that Ministry of Culture, Councils of Conservation and IMM would not allow such a construction project. It was suggested by CP Teams that the proposal with an image drawing be removed from the report.

She added that an alike pedestrian overpass could be recommended to be located at Aksaray. However, it was considered that the elevated pedestrian structure would not be suitable there, because the existing under-pass system should be further improved.

Head of Transport Planning Division, Mr. Ahmet Hamdi Güner, requested to prepare a time schedule for the rest of the Project. The CP Team agreed upon reading the English version of the report and provides

their comments and. At the end of the meeting, it was decided by both parties that until June 20, Counterparts should give their revisions for the report , and JICA Study Team should finalize the Final Report in both Turkish and English versions, based on all the comments coming from JICA and IMM , by the end of June.

3. Closing

After discussions above, Ms. Neriman asked JICA Project Team about a time schedule of the upcoming JICA Mission. JICA Study Team answered that it was heard that the JICA Mission would prepare to come to Istanbul next month. Mr. Ahmet mentioned that IMM's decision was to suspend the middle- and long-term development planning, because IMM placed policy priority on the implementation of short-term projects, and has delivered this decision to JICA Ankara Office. He also mentioned that if, in the future, there was another opportunity to work with JICA on a different subject, IMM could discuss this with JICA, and that above all, the study about Yenikapı would be terminated by the end of this Project.

As final words, Mr. Ahmet Hamdi Güner thanked all members of the project for their efforts.

***

Participants List

Name	Institution
Ahmet Hamdi Güner	Director of Transport Planning Directorate ,IMM
Onursal Baş	Vice Director of Transportation Planning Directorate, IMM
Nesligül Ünal	Transportation Planning Directorate, IMM
Neriman Erünsal	Transportation Planning Directorate, IMM
Dilek Çol Yılmaz	Transportation Planning Directorate, IMM
Nilüfer Dünya	Transportation Planning Directorate, IMM
Serkan Şimşek	Transportation Planning Directorate, IMM
Mehmet Çakır	Transportation Planning Directorate, IMM
Serap Çetinkaya	Transportation Planning Directorate, IMM
Halime Tekin	Transportation Planning Directorate, IMM
Betül Güney Akbıyık	Transportation Planning Directorate, IMM
Katsuhide Nagayama	Team Leader, JICA Study Team
Tetsuo Wakui	JICA Study Team
Tamaoki Watanabe	Deputy Team Leader, JICA Study Team
Ken Kumazawa	JICA Study Team
Makoto Okamura	JICA Study Team
Melike Önyılmaz	JICA Study Team
Ece Işın Doğan.	JICA Study Team

Consultation Meeting on Draft Final Report of JICA iSTDM Project

June 13, 2014
JICA Study Team

2

Contents

1. **Overall Structure of the Report**
2. **Transport Demand Changes by Rail-Transit Development** (Chapter 2)
3. **Urgent Projects for Bus Rerouting in the Historical Area** (Chapter 4)
4. **Urgent Improvement Plan of Yenikapi Station and Sirkeci Station** (Chapter 3)
5. **Next Step** (Chapter 5)

3

1. Overall Structure of the Report

Outlines of the Project

1.1 Overall Goal

Appropriate Traffic Demand Management (TDM) measures will be implemented in the Istanbul historical area to create comfortable city environment.

1.2 Project Purpose

Transportation Department's implementation capacities of TDM measures for the Istanbul historical area are strengthened.

1.3 Outputs

Output 1: Traffic characteristics of the Istanbul historical area are clarified and transportation planning issues are identified.

Output 2: Transportation department's capacities are strengthened through planning, implementing, evaluating, and analyzing Social Experiments of TDM measures.

Output 3: Experience of Social Experiments is streamlined as "guidelines for TDM" and shared among relevant departments of IMM.

Output 4: Short and Middle Term Development Plan

4

1. Overall Structure of the Report

Main Activities of the Project

- Planning and Implementation of 1st Social Experiment
- Planning of 2nd Social Experiment
- Implementation of Twice Japanese Trainings and Thrice Seminars
- Preparation of "Guideline of TDM Measures"
- Preparation and Training of "Short List of TDM Measures for Historical Peninsula"
- Preparation of "Technical Report of Urban Transport Issues in Historical Peninsula"

Recommendations

- Understanding the importance of survey and demand forecast, and capacity building of survey and demand forecast.
- Sharing survey result and other information between related agencies.
- Sharing not only transport development plan but also urban development plan.

5

1. Overall Structure of the Report

Final Report

Vol.1: Final Report of Technical Transfer Project

1. Introduction
2. Progress of the Project
3. Conduct of the 1st Social Experiment
4. Conduct of the 2nd Social Experiment
5. Challenges, Devisal and Lessons for Implementation Project
6. Recommendations for Achieving the Overall Goal of Project

Vo.2: Technical Report of Urgent improvement plan of Yenikapi Station and Sirkeci Station

1. Characteristics of the Study Area
2. Transport Demand Changes by Rail-Transit Development
3. Urgent improvement plan of Yenikapi Station and Sirkeci Station and the walker facilities in the outskirts
4. Urgent Projects for Bus Rerouting in the Historical Area
5. Nest Step

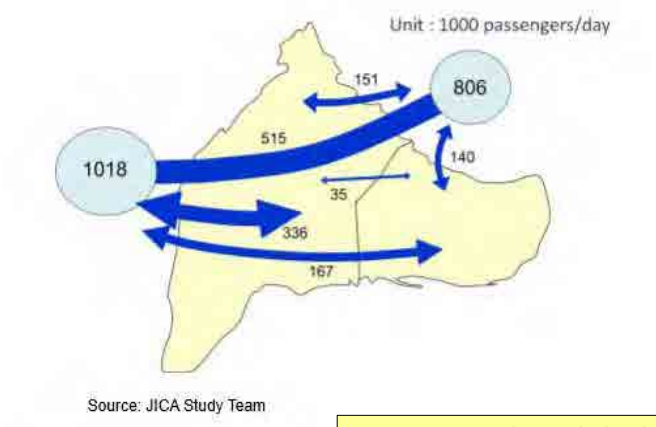
6

2. Transport Demand Changes by Rail-Transit Development

- Overall Demand Structure from / to the Historical Area
- Passenger Flow by Corridor before/ after Marmaray
- Historical Trend of Public Transport Passengers
- From which modes are the Marmaray passengers converted?

7

Public Transport Demand Structure of Historical Area

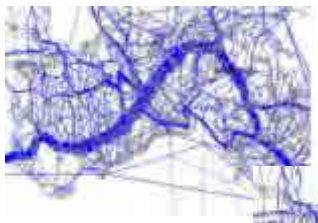


Source: JICA Study Team

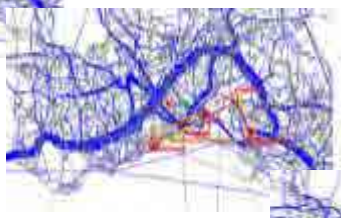
Among various demand, the through passengers are dominant, which shows importance of TDM.

8

Passenger Flow before/ after Marmaray M1 & M2



Without Marmaray and M1

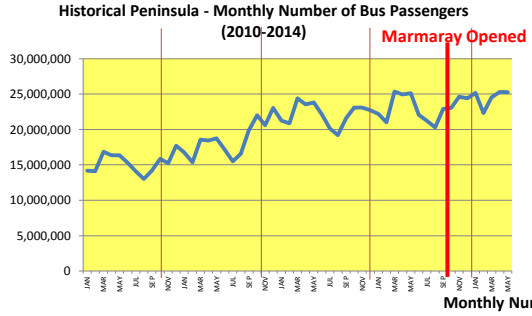


With Marmaray and M1

Marmaray and M1

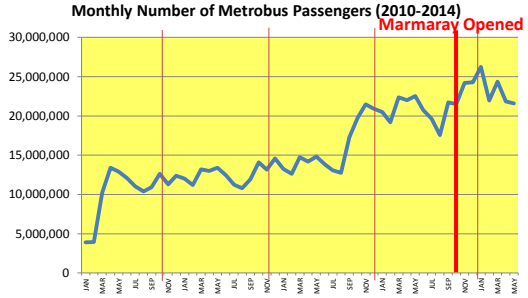
9

Monthly Bus Passengers



Bus Passengers in Historical Peninsula (pax/month)

Metrobus Passengers (pax/month)



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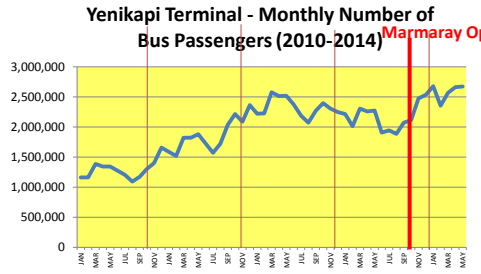
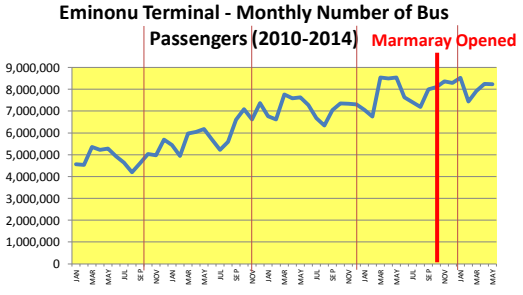
iSTDM-Phase 2



Bus Passengers of Yenikapi Terminal based Lines (pax/month)

Bus Passengers of Eminonu Terminal based (pax/month)



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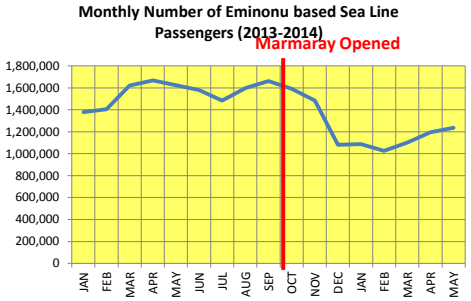
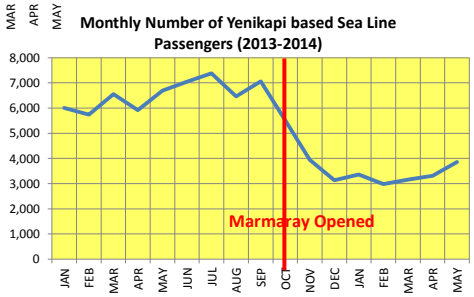
iSTDM-Phase 2



Sea Transport Passengers of Eminonu Terminal based Lines (pax/month)



Sea Transport Passengers of Yenikapi based Lines (pax/month)

12

Passengers before/ after Marmaray & M1/M2

1,000 passengers/ day in 2014

Case	Boarding Passengers	Passengers crossing Bosporus		
		Marmaray	Metrobus	Ferry*
Before Marmaray	-	-	1003	362
Marmaray + Extension of M2	141	120	947	219
Marmaray + Extension M2 & M1	169	143	928	203

* Ferry lines from/ to Kadikoy only

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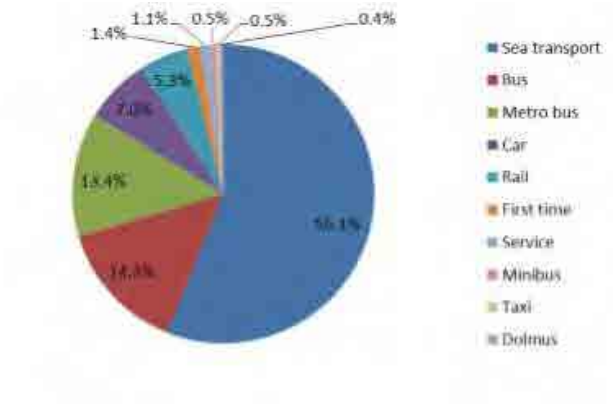
Original Modes of Marmaray Passengers



Composition (%)

Mode	
Sea Transport	56,1
Bus	14,3
Metro Bus	13.4
Car	7.0
Rail	5.3
First Time	1.4
Service	1.1
Minibus	0.6
Taxi	0.5
Dolmus	0.4
Total	100.0

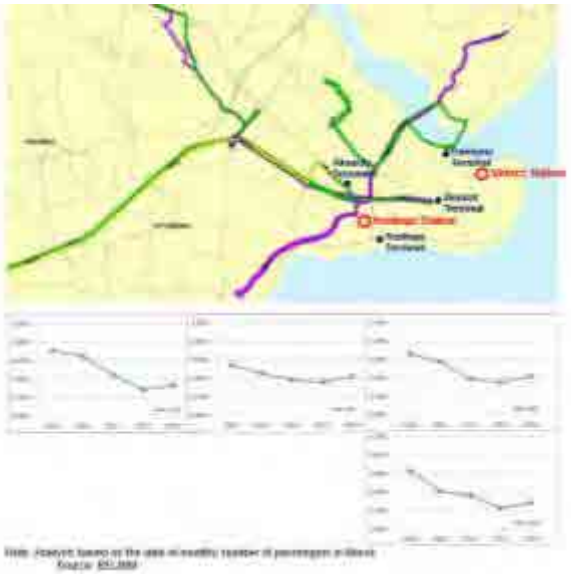
14

3. Urgent Projects for Bus Rerouting in the Historical Area

- Impact of Marmaray upon Existing Bus Lines
- Recommendations on Bus Rerouting
- Effects on recommended Bus Rerouting
- Approach for Evaluation of Large-scale Rerouting

15

Bus Lines with increased Passengers



Lines
32A
90
801
145

16

Bus Lines with decreased passengers

Lines
28
33B
35
92
91
99
146

17

Proposed Bus Lines for Rerouting

Eminonu Terminal-Based		Aksaray Terminal-Based	
35	Make these lined originate from Yenikapi Station instead of Eminonu terminal (Disconnect the service between Eminonu-Yenikapi)	89	Make these lined originate from Yenikapi Station instead of Aksaray terminal
33B		89B	
82		89i	
92		145	Rerouting via Yenikapi is completed
92C		Beyazit Terminal-Based	
(92G)	Cancelled	82B	Make these lines originate from Yenikapi Station instead of Beyazit terminal
93	Make these lines originate from Yenikapi Station instead of Eminonu terminal (Disconnect the service between Eminonu-Yenikapi)	92B	
94		94A	
97A		97	
		97B	
		(397B)	Cancelled

Source: JICA Study Team

18

Proposed Rerouting (1)
Eminonu Terminal-Based Lines

Source: JICA Study Team

19

Proposed Rerouting (2)
Aksaray Terminal-Based Lines

Source: JICA Study Team

20

Proposed Rerouting (3)
Beyazit Terminal-Based Lines

Source: JICA Study Team

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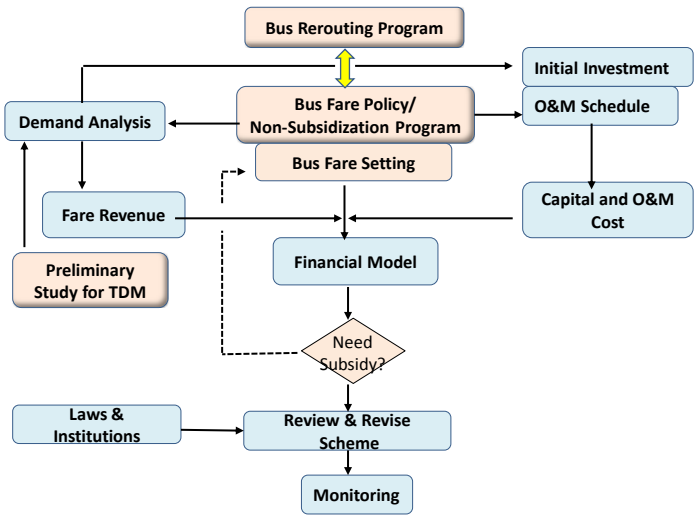
Before and After Bus Rerouting

Case	No. of Boarding Passengers on Marmaray (/day)	No. of passengers Crossing the Bosporus (/day)		
		Marmaray	MetroBus	Ferry*
After Extension of Airport Line(M1)	169,900	142,900	928,200	212,900
After Rerouting of Bus Lines	179,500	152,300	928,700	203,000

Note: *Ferry lines to/from Kadikoy only
Source: JICA Study Team

22

Evaluation System of Large-Scale Rerouting



4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

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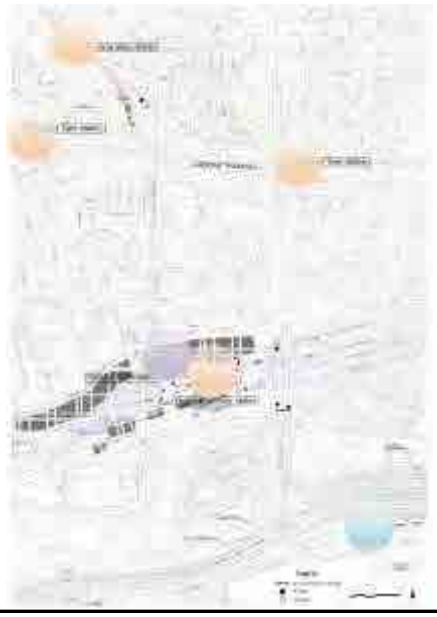
Yenikapı Station:

Yenikapı – Aksaray Metro: 770m
Yenikapı – Aksaray Tram: 420m
Yenikapı – Yusufpaşa Tram: 670m
Yenikapı – Yenikapı IDO: 500m

Existing Facilities around Yenikapı Station :

3 Bus Stops
1 Taxi Stand
Transport Guide Boards (mostly Picto Signs)

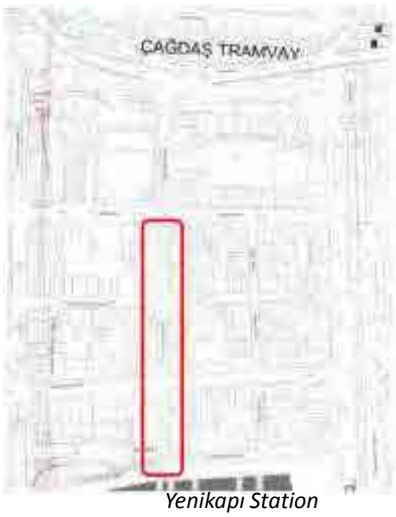


4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

24

Valide Cami Street:

- *Traffic calming measures (hydraulic vehicle stopping barriers, roadside parking control)*
- *Street beautification (walkway tiles, street furniture, greenery, flower)*



Yenikapı Station

4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

25

Gazi Mustafa Kemal Paşa Street:

- *Congested and unsafe pedestrian environment*
- *More capital intensive measures are necessary rather than minor improvement*

4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

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Gazi Mustafa Kemal Paşa Street:

4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

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Yenikapı Station - Yenikapı IDO:

4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

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Station Square Access Improvement Idea 1:

To enable station access by bus and taxi at both east (Gazi Mustafa Kemal Paşa Street) and west sides. The number of bus berths to be allocated is 15 at maximum.

4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

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Station Square Access Improvement Idea 1:

The west service road (12m wide) can be designed to install bus berths with some geometric adjustment.

4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

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Station Square Access Improvement Idea 2:

To segregate taxi bay at the north service road (Langa Bostanları Street) from bus bays for better traffic management.

The existing city plan to be pedestrianized should be modified.

4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

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Bus Stop Improvement:

Its design and information service will be improved.

4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

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From Picto Sings to Information Board:

4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

33

Yenikapı Station to be an Integrated Transport Terminal (Capacity-wide Solution):

To be a multi-storey building:

- *Underground: Rail Stations, Car Parking*
- *Ground Level: Bus Terminal, Taxi Stand*
- *Second Level: Pedestrian Deck to Adjoining Buildings across Roads*
- *Third Level and Above: Car Parking, Commercial, Restaurants and Other Services for Travelers*

Sendai Station, Japan

4. Urgent Improvement Plan of Yenikapi Station and Sirkeci Station

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Sirkeci Station:

Similar improvement measures will be applied for enhancing Sirkeci Station's accessibility:

- Widening of sidewalks;
- Increasing of improved pedestrian crossings with signaling systems;
- Renewal of the pedestrian bridge; and
- Placement of well-designed guiding boards and/or map-boards.

Better Connection with Eminönü Ferries

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5. Next Step

Remaining Planning Issues for Medium- and Long-term Development :

1. Strengthening of Hub Functions of Yenikapi Station
2. Bus Service Rerouting
3. Exploration of Traffic Demand Management (TDM) Measures for the Historical Peninsula
4. Formulation of Action Plan to Facilitate TOD in Yenikapi Area

Given external conditions:

- Extension of MI Line to the Yenikapi Station
- Impact of the Euro-tunnel
- Underground Passage of the Kennedy Avenue
- Urban Redevelopment in the surroundings areas at the Yenikapi Station

Appendix-13 List of Equipment

List of Equipment

No	Name of Item	Qty	Place of Installment
1	GPS Data Logger	10	Istanbul, Turkey
2	Driving Recorder with GPS	10	Istanbul, Turkey
3	JICA STRADA	1	Istanbul, Turkey
4	Projector	1	Istanbul, Turkey
5	Computer	3	Istanbul, Turkey
6	Photo Copy Machine	1	Istanbul, Turkey