

ANNEX11-2: 2nd JCC Meeting

Minutes of the 2nd Joint Coordinating Committee Meeting

of

The Project for Capacity Development on Comprehensive Traffic Management Planning and Traffic Control Center Operation and Maintenance in Phnom Penh Capital City (PPTMTC)

The 2nd Joint Coordinating Committee (JCC) meeting between Phnom Penh Capital Administration (PPCA), Department of Public Works and Transport of Phnom Penh (DPWT), Japan International Cooperation Agency (JICA), and the concerned members of the Project for Capacity Development on Comprehensive Traffic Management Planning and Traffic Control Center Operation and Maintenance in Phnom Penh Capital City (PPTMTC) was held in a hybrid format, on-line and in-person at Phnom Penh Capital Administration (PPCA) on 22nd of February, 2023. The comments and the discussions were made on several items as described below.

1. Opening remarks by PPCA and JICA:

(Before delivering the Remarks, Mr. Masato Koto, team leader of JICA expert team announced the passing of Mr. Chikahiko Machida, one of the active key member of PPTMTC project and, who prior to his death, had contributed a lot to the development on urban transport of Phnom Penh City through the implementation of JICA's ODA projects. All the participants of the meeting took a moments of silence to pay tribute to the loss of Mr. Machida)

Ms. Ai Miyahara, senior representative of JICA Cambodia office, welcomed all the participants. She continued giving her brief remarks on the long history of JICA cooperation and support to the Kingdom of Cambodia, particularly in the Social, Industrial and Infrastructure Development. She continued adding that this technical cooperation project aims to improve traffic management measures in Phnom Penh. She further mentioned that traffic congestion has become more serious in Phnom Penh after overcoming the crisis of COVID-19 and traffic management is very critical for urban management. Through this meeting, an important approval is expected to be taken for the implementation of the pilot project which determine the target locations for Outcome 3. She would like to express her sincere appreciation to the colleagues from DPWT, PPCA and JICA expert team for the close and active cooperation will achieve outstanding outcomes, thereby contributing to the growth of Phnom Penh Capital City. Before closing her remarks, she also expressed her sincere condolence to the loss of Mr. Machida who has played a very important role in this project and wish this JCC meeting a successful and fruitful discussion.

H.E. Nuon Pharat, Vice Governor of PPCC and PPTMTC project director, welcomed all the participants and expressed his sincere thanks to the Government of Japan for extending support through JICA, as well as to JICA expert team for the implementation of the PPTMTC project. He mentioned that this project complements the Traffic Control Center (TCC) project (Grant Aid Project) which was handed over in December 2018 to PPCA. He continued stating that this project has 5 expected outcomes including (1) the establishment of maintenance management system of traffic control system, (2) strengthening capacity of TCC staff on the operation of traffic control system, (3) strengthening the capacity to design traffic signals is through the implementation of pilot projects for traffic signal improvement, (4) strengthening the capacity of the relevant staff to traffic control in PPCA, DPWT and TCC staff to develop the expansion plan of traffic control system and (5) strengthening the capacity of urban transport related organizations on traffic management measures toward the enhancement of the project sustainability. He also added that this project duration was starting from January 2022 to February 2025 and has set up a Joint Coordinating Committee (JCC) which is headed by H.E. Governor and two Vice Governors. After the first JCC Meeting, this project has achieved fruitful results throughout the project activities especially training activities. The same to Ms. Miyahara, he pointed out that this 2nd JCC meeting aims to discuss the proposed structure of TCC organization chart and its approval procedure, as well as the approval on the implementation of the proposed pilot projects, in this regard, he calls on all the participants to provide comments and inputs so that the consultant can achieve the goal of the project effectively and efficiently. On behalf of H.E. Governor of PPCC, he sincerely thanked to the JICA for continuous support to the development of Cambodia, especially

in Phnom Penh Capital City on traffic management and drainage system, and finally expressed his sincere condolence to Mr.Chikahiko Machida who was an important key player of this project.

2. Contents of Presentations:

Mr. Masato Koto responded to the questions during the first JCC meeting about the TCC organization structure that TCC has 14 staffs currently and expect to 20 staffs for the future. He continued adding that PPTMTC team has already formulated the draft of TCC organization chart and working closely with DPWT for processing to get the approval from the PPCA management. He further added that the project team also invited the relevant person from other organizations such as Institute of Technology of Cambodia (ITC) and Ministry of Public Works and Transport (MPWT) to join this 2nd JCC meeting. He further made the presentation on the overall outline of the PPTMTC project covering outline of the project, DX and PPTMTC project, proposed of the TCC organization structure, result of PPTMTC training and pilot project. For the details, please refer to the presentation material.

3. Main Points of Discussion:

No.	Comments/Questions	Answers
1.	TCC organization structure	
(1)	H.E Nuon Pharat asked if there is existing TCC organization chart has been used before??	- Mr. So Phara, Chief of Development and Construction Management office, responded that the TCC organization chart have not gotten official approval from the governor of PPCA yet. - Mrs. Pheng Pharinet, Chief of TCC, responded that previously TCC organization chart have never gotten official approval from PPCA. We have tentatively used the one drafted by the project team during the Grant Aid project. So that within this project, the JICA expert team of PPTMTC project aim to set up an official TCC organization chart with the official approval from DPWT and PPCA to be used in the future for the proper management of the TCC.
(2)	H.E Nuon Pharat agreed with the proposed TCC organization structure, except the financial section which is considered to be complicated issue for TCC to deal with financial issue.	- Mr. Masato Koto responded that financial section is in charge of financial planning and how much TCC need annually for TCC operation. - Mr. Chou Kimtry agreed with this TCC organization chart and further explained that this proposed organization chart is very important for sustainability of TCC operation. The most problem is a financial issue, as it is difficult and takes long time to get the budget for maintenance and operation, therefore a financial section is important to plan such a thing in advance for allocating annual maintenance and operation budget.
(3)	H.E Suy Serith suggested to consider the existing structure of the two offices which are currently under organizational structure of DPWT, namely Public Lighting and Traffic Signal Office and Road Safety Office. Therefore, it is not recommended to establish a new financial section under TCC, instead he suggested to consider integrating the financial to	

	public lighting/road safety office and included the requested annual budget through the two said offices requested.	
(4)	H.E Nuon Pharat basically agreed with the proposed TCC organization chart, but for the financial section, he suggested to revise the structure by allocating only two staff under this section (one section chief and one officer). For technical staffs can be increased as much we could for the efficient and effective operation of TCC.	
(5)	Mr. Chou Kimtry suggested the project team to consider including the capacity building for the traffic management including parking management and public transport. He further added that the increase amount of paratransit in the city and how to limit or control of paratransit services become a major of concern for Phnom Penh City.	Mr. Koto responded that during the master plan project, the study team also introduced the zoning system for paratransit operation, but need subsidies from PPCA for the introduction of public transport.
(6)	H.E Nuon Pharat additionally suggested the expert team to include how to smooth communication between traffic police and TCC staff as part of the training agenda.	
2.	Pilot Project	
(1)	Ms. Tema Vichekal , regarding the procurement of equipment for the pilot project, she suggested that the expert team should cooperate with the international relation office and submit the necessary document eg. Master List ...etc., in case it is expected to have a request for import permit and import tax exemption.	Mr. Koto took note on this suggestion and will further discuss closely about this issue later.
(2)	Ms. Tema Vichekal , Deputy Director of Administration of PPCA, concerned about the implementation schedule of pilot projects since there will be big international events such as SEA game and Para-game to be held soon in Phnom Penh, therefore it is suggested to include the schedule of these upcoming events into consideration when the project team prepare the schedule plan to implement the pilot projects.	Mr. Koto took note on this information and added that the survey may be conducted end of March, before 10 of April. The survey should be finished before the event, or else the condition of the traffic will not be normal for conducting the survey.
(3)	Dr. Phun Vengkheang , Head of Transport and Infrastructure Engineering Department from ITC agreed that the study also included location number 3 and 4 in this pilot project. He also suggested the project team to consider the signal modification at intersection No. 136 (in front of Institute of Foreign Languages) in order to improve the traffic flow along the main road if possible. He further suggested the project team to study one-way system which can help improve the traffic flow in the city.	Mr. Koto responded that the pilot project is already fixed. But this suggestion will be considered for further study.
(4)	Ms. Tema Vichekal also asked if the project team has included the parking system, one-way system as well as bus priority signal into this study (under this project)?	Mr. Koto responded that we also include the parking system and now one of our expert members who is in charge for traffic management is working with MPWT on the process for set up of parking law. Currently, the project team try to concentrate on implementing the 7 proposed pilot locations.

		For the rest of the issues, JICA will consider further cooperation with PPCA.
3.	Procurement of Equipment for the Pilot Project	
(1)	H.E Nuon Pharat agreed with the proposed sustainable procurement, however please ensure that the procurement should be quick with low cost and high quality.	
(2)	Mr. Koto mentioned that the warranty inspection period is usually one year for construction, but for this pilot project, it is should be shorter to ensure that the warranty period will be schedule within the implementation period of the project. However, this issue is subject to further discuss in detail during the detailed design study for this pilot project.	

4. Closing and Conclusion:

Before closing, **H.E Suy Serith** summarized and concluding the main points of discussion among the participants during the 2nd JCC meeting as the followings:

- (1) The proposed TCC organization structure is basically agreed by the meeting participants; however it is required to modify the financial section of the structure following the comments provided above before further submit to the governor for approval.
- (2) The 7 proposed pilot projects and its location are agreed by the meeting.
- (3) For the procurement of the equipment for the pilot project, the project team is required to consider the country whose product have equivalent quality to the Japan and or to those procured during the Grant Aid Project, with quick procurement procedure and low cost to sustain the operation of the TCC.
- (4) The training should be continued to improve the capacity of the staff and to achieve the training goals.

The meeting was adjourned at **11:30 AM**.

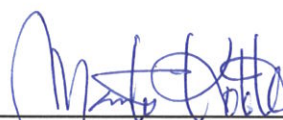
CONFIRMED BY:



H.E. NUON PHARAT
Vice Governor
Phnom Penh Capital City



Ms. AI MIYAHARA
Senior Representative
JICA



Mr. MASATO KOTO
Team Leader
JICA Expert Team

2. Photos

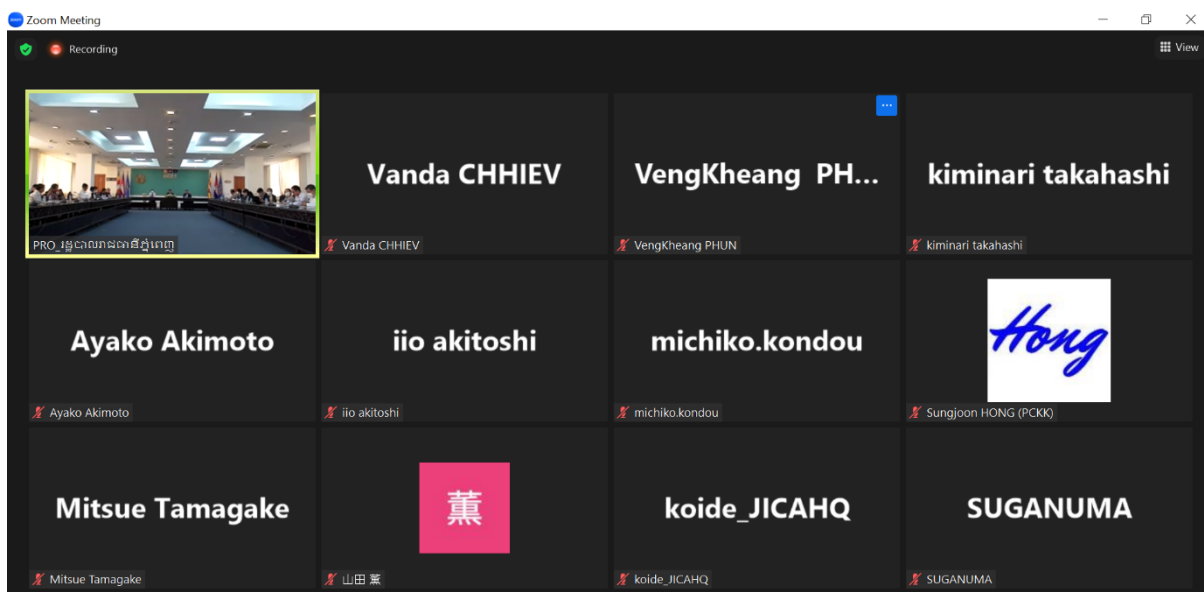


H.E. Nuon Pharat, Vice Governor, PPCC (middle)

H.E. Suy Serith, Vice Governor, PPCC (right)

Ms. Ai Miyahara, Senior Representative of JICA Cambodia Office (left)





Participants of 2nd JCC meeting

3. Presentation Material



Phnom Penh
Capital City



Department of
Public Works
and Transport

**Project for Capacity Development on
Comprehensive Traffic Management Planning and
Traffic Control Center Operation and Maintenance in
Phnom Penh Capital City (PPTMTC)**

2nd Joint Coordinating Committee Meeting

22 February 2023



Japan
International
Cooperation
Agency



METS
IDCJ
OC GLOBAL

METS RESEARCH & PLANNING, INC.

INTERNATIONAL DEVELOPMENT CENTER OF JAPAN

ORIENTAL CONSULTANTS GLOBAL Co., Ltd.

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Questions and Answers during the 1st JCC Meeting held on 22 July 2022

Items	Question/Comment	Answer
Number of TCC Staff	- How many staff will be expected to increase with this proposed organization? (HE Nuon Pharat, PPCA) - Mr. Chou Kimtry, Deputy Director of DPWT raised up some challenges for the implementation of this project the limitation of human resource and budget as well as do not have enough equipment/spare parts for repairing.	Proposed Organization: 14 In the Future: 20 Overall goal is more comprehensive Already includes indicators related reduce congestion and accidents
About TCC Organization	Mr. Sor Phara, Chief of Development Management & Construction Office, PPCA, stated that TCC needs a permanent organizational structure which required experts and financial resource for its sustainable operation. Therefore, he suggested that PPCA should consider how to set up an organization structure for TCC either under the structure of PPCA or DPWT.	H.E Nuon Pharat suggested that the organizational structure of TCC should be flexible, strong and low cost. And we need to consider about work demarcation between the public and the private sector.
Participation of the stakeholders to PPTMTC Project	H.E Nuon Pharat suggested that the expert team should consider to involve the participants from academic institutions such as ITC to the capacity training to increase human resource necessary for the future operation of TCC. And if possible, should provide a presentation at ITC about this project.	Mr. Koto responded that he will invite universities and transport study group to the next JCC meeting and consider how to involve them the next project activities.

1. Outline of the Project

Project Name	Project for Capacity Development on Comprehensive Traffic Management Planning and Traffic Control Center Operation and Maintenance in Phnom Penh Capital City
Project Period	January 2022 to February 2025
Overall Goal	Sustainable Urban Transport Environment is Formed
Project Purpose	Traffic Management Measures Including Traffic Safety Measures in Phnom Penh is Improved
Expected Output	Output 1: Maintenance Management System of Traffic Control System is Established Output 2: Capacity of TCC Staff on the Operation of Traffic Control System is Strengthened Output 3: Capacity to Design Traffic Signals is Strengthened through the Implementation of Pilot Projects for Traffic Signal Improvement Output 4: Capacity of the Relevant Staff to Traffic Control in PPCA, DPWT and TCC Staff to Develop the Expansion Plan of Traffic Control System is Strengthened Output 5: Capacity of Urban Transport Related Organizations on Traffic Management Measures is Strengthened towards Enhancement of the Project Sustainability
Counterpart Institution	Implementing Agencies: Phnom Penh Capital Administration (PPCA), Department of Public Works and Transport (DPWT), Traffic Control Center (TCC) and Phnom Penh Traffic Police (PPTP)
Project Area	Whole Area of Phnom Penh

2. DX and the PPTMTC Project



One of the Digital Transformation (DX) competencies worked out by Phnom Penh is the new centralized traffic control system, which replaced the old standalone analog traffic lights. This DX has transformed the daily life of PP inhabitants with having to follow the rules to enable smooth travel; it has also improved the urban environment. These are major first steps taken by Phnom Penh towards supporting the SDGs and becoming a smart city.

- (1) Changes in people's awareness of road use
- (2) Travel speed changes in 2017 (11.3 km/hr.) and 2018 (15.2 km/hr.) and reduced travel time cost (Saving travel time cost of Monivong Blvd. drivers is 2.5 million USD/year compare before and after traffic signal installation)
- (3) Contributing to the Urban Environment and the Reduction of Global Warming

Digitalization: Traffic volume is collected from CCTV video images using artificial intelligence (AI)-driven data processing technology from manual work and utilized in urban transport policy/measures.

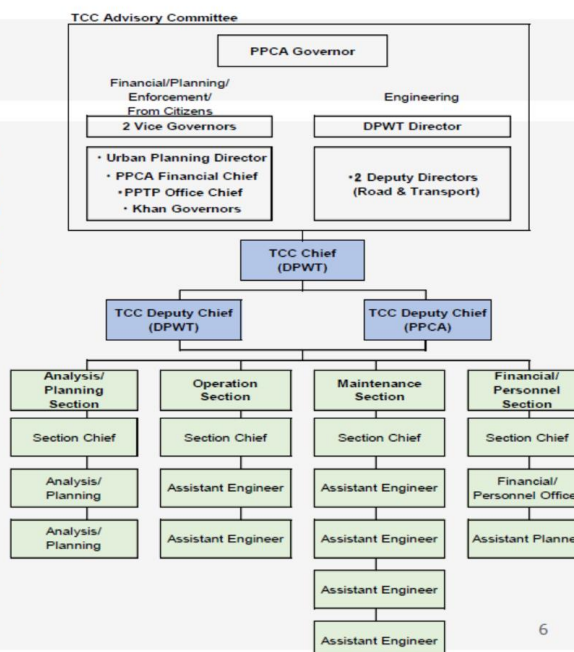


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3. Proposed TCC Organization

In order to sustain the comfortable urban environment, especially the mobility of Phnom Penh citizens, it is very important to officially approve the TCC as an organization of the Phnom Penh Capital City. Maintaining this environment, it is necessary for at least 14 TCC staff to monitor traffic conditions 365 days a year.

- (1) Addition of the Governors of all 14 Khans in Phnom Penh to TCC Advisory Committee,
- (1) Designation of two Deputy Directors of DPWT (Road and Transport) as Committee members,
- (2) Removal of DPWT advisor from the committee membership, and
- (3) Appointment of two TCC deputy chiefs in TCC.



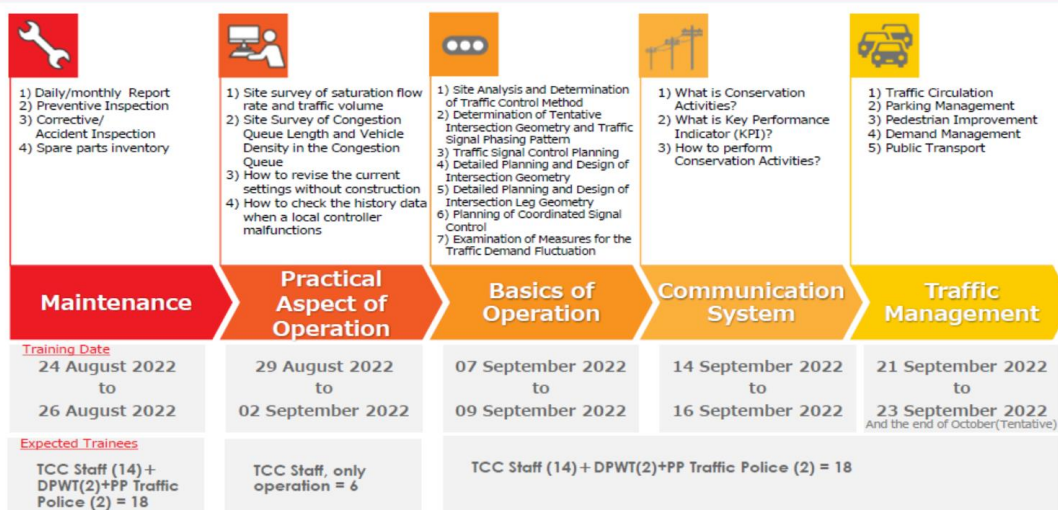
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4. PPTMTC Training 4.1 Outline of the PPTMTC Training

Due to the soft components of the Grant Aid, TCC staff has general operational skills and knowledge. With the strong support of PPCH and DPWT, TCC has been operating sustainably from 2019 when the signal system was handed over to Phnom Penh to the present, but it is hard to say that the current SUMIDEN system is fully used. In order to minimize the occurrence of signal system accidents and accidents repair time by maximum use of current signal system, conduct of training will be implemented in line with Phnom Penh's traffic control system and traffic conditions.

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4.2 PPTMTC Training Timeline



4.3 PPTMTC Training by Sector

(1) Maintenance Management of Traffic Signal System

After assessing the capabilities of the TCC staff in maintenance management, the training content was customized to address the weak spots such as maintenance operating procedure. It was found that preventive maintenance is seldom done and no routine inspection is performed, among other things. However, corrective maintenance is fairly done and fortunately, no major hardware problem has yet been encountered during the 3 years of operation.

Contents and summary of the maintenance training are as follows:

- | | |
|--|---------------------------|
| A: Pre-evaluation and introduction to maintenance management | |
| B: Maintenance Management in some other countries including experiences in Japan and the Philippines | |
| C: Maintenance Management in Phnom Penh | F: Corrective Maintenance |
| D: Inventory Management & Reporting | G: Occupational Safety |
| E: Preventive Maintenance | H: Field training |

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(1) Maintenance Management of Traffic Signal System



Maintenance Classroom Training



Maintenance Training Field Work

(2) Practical Aspect of Operation Training

The Phnom Penh TCC has been in continuous operation since its 2018 handover, thanks to the PPCH's financial support and the efforts of the TCC staff, although their capabilities need to be developed further.

This training is designed to provide TCC staff with the operational knowledge necessary to maintain TCC in the future.

Issues in TCC operation

Certain staff members are responsible for changing settings and other operations, but the following issues remain that prevent them from properly operating the system:

- Lack of understanding of the function of the traffic control system.
- Lack of knowledge of traffic engineering (intersection design, operational parameter design, etc.)
- Lack of knowledge and experience to better understand local traffic conditions.

This training, led by a traffic control system manufacturer (Sumitomo Electric Industries, Ltd.), focused on operating procedures and the basics of traffic engineering.

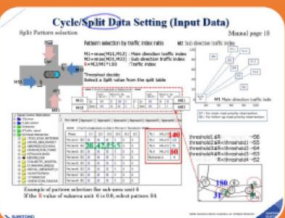
(2) Practical Aspect of Operation Training

Contents



TCC operation Explanation

- Data Backup
- Procedure for changing signal control parameters (Cycle • Split • Offset • Fixed seconds)
- Signal control transition procedure (Intervention Control → Time Control → automatic control)



TCC Function Description

- Automatic control (Cycle • Split • Offset)
- Gap actuation control
- Traffic data collection (Traffic index)

(3) Training for Traffic Signal Control

Current Abilities and Issues of TCC Staff

- Signal operation capability of TCC has been built up and secured, based on the experience since the establishment of TCC in December 2018.
- Most of TCC staff have not received official education of traffic engineering and signal control.
- TCC staff heavily rely on the previous experience, but the experience is limited.
- To properly conduct the signal operation and take an important role as a fundamental organization that can carry out traffic management, basic knowledge of traffic engineering and traffic signal control is required.

Training Planning

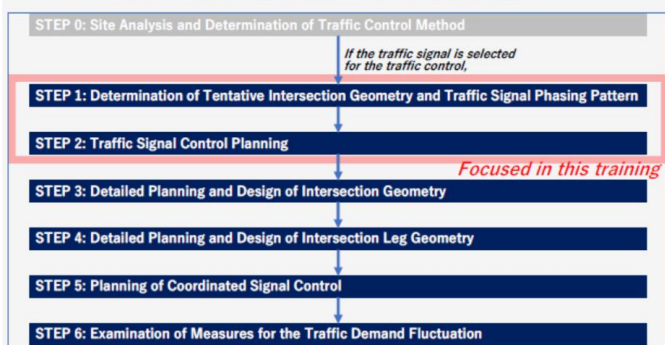
Training prepared and organized to improve TCC staff's understanding and provide basic knowledge of traffic engineering and traffic signal control

- Lectures on the basics of traffic engineering
- Lectures on the basics of traffic signal control
- Exercise on traffic signal parameter determination

(3) Training for Traffic Signal Control

Training Implementation

- Training held on 7th, 8th, and 9th of September 2022
- Trainees: nine in total
 - Seven TCC staff including Chief of TCC
 - One from PPCA and one from Traffic Police



General Procedures of Signalized Intersection Planning and Design

◆ Basics of Traffic Engineering

- Basics of traffic engineering required to understanding the signalized intersection planning & design

◆ Basics of Signalized Intersection

- Basics of signalized intersection and traffic signal control

◆ Planning and Design of Traffic Signal Control

- Minimum knowledge but the details, which covers the overall procedures from the initial planning of signalized intersection to the determination of signal split (timing)

◆ Exercise

- Exercise of traffic signal control planning & design for two simple cases of signalized intersection

◆ Introduction of Traffic Simulation

(4) Training for Communication System

Current Situation of Communication System and TCC

The communication system problem reported by TCC is mainly disconnection of optical fiber cables laid outdoors. In addition, failures of communication equipment have also occurred due to power outages at traffic signal points. Although the causes of these accidents are considered to be other than the TCC, they cause network failures between each traffic signal point and the TCC. Currently, network failures can be detected at TCC, and TCC personnel are able to identify the cause of its failure through field investigations, eliminate the problem, and restore the network. However, it is difficult to prevent network failures in advance, and it is necessary to respond to each failure on-site and to procure replacement parts, resulting in downtime until the network is restored.

Training Planning

The training policy is to focus on identifying the root cause of failures, understanding trends in failures, and learning the knowledge to continuously improve network availability through maintenance and management activities.

(4) Training for Communication System

Training Implementation

- Training held on 14th and 15th of September 2022
- Trainees: seven in total
 - Seven TCC staff including Chief of TCC
 - One from PPCA

☐ Photos of the training



Communication System Training
(1st Day)



Communication System Training
(2nd Day)

◆ Introduction of Communication System

- Scope of Communication and Components
- System Components
- Type of Transmission Method
- Pilot Project

◆ Introduction of Network

- Network Topology
- Network Monitoring
- Data Transmission

◆ Introduction of KPI

- What is Key Performance Indicator?
- Reliability System Flow Chart
- KPI Monitoring

◆ Introduction of Conservation Activities

- What are Conservation Activities?
- Example of Conservation Activities
- Japanese Manual of Optical Fiber Cable

(5) Traffic Management

1) Agreed objectives for improved traffic management

PDM stipulates agreed objectives for improved traffic management under JICA Project:

Overall goal: Sustainable urban transport environment is formed.

Project purpose: Traffic management measures including traffic safety measures in Phnom Penh is improved.

Output (5): Capacity of urban transport related organizations on traffic management measures is strengthened towards enhancement of the project sustainability.

Implementing agencies: PPCA, DPWT/TCC (Phnom Penh), Traffic Police (Phnom Penh)

Definition of Traffic management: Traffic management refers to the combination of measures that serve to preserve traffic capacity and improve reliability of the overall road transport system. It covers (i) **Traffic circulation**, (ii) **Parking management**, (iii) **Pedestrian environment improvement**, (iv) **Demand management**, and (v) **Public transport and modal shift** under JICA Project.

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2) Training Plan: Target

Concerned counterpart more or less engaged in the intensive training and OJT, depending on traffic management measure. Through implementation of pilot project, OJT targets its implementing agencies (shown as ◎ in the table) and other concerned counterparts.

	Intensive Training				OJT				Pilot Project (Tentative)
	MPWT/ MLMUPC	PPCA	DPWT/TCC	Traffic Police	MPWT/ MLMUPC	PPCA	DPWT/TCC	Traffic Police	
Traffic circulation		○	○			○	◎		One-way system and improved parking control
Parking management	○	○	○	○		◎	○	○	On street parking contract
Pedestrian improvement		○	○			◎	○		Transit mall and improved walkway
Demand management		○				◎			
Public transport	○	○				◎			Intercity bus terminal

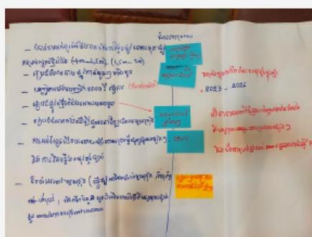
3) Implementation of training: Training subjects

Training subject designed for improved understanding to identify traffic management issues in Phnom Penh and international traffic management practices and examine applicability of these practices to Phnom Penh.

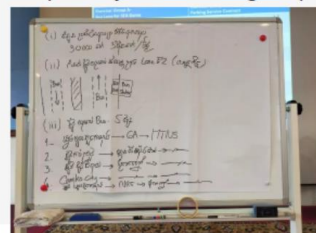
Traffic Management	Parking Management	PT Priority Measures
- Objective of JICA PPTMTC - Expected goals of today's training - Why is traffic management necessary? - Urban transport in Phnom Penh at glance - Comparison with other GMS cities - Proposed Traffic Management Scheme by JICA/ADB Studies - Traffic management in general - Draft traffic management strategy for Phnom Penh:	- Objective of JICA PPTMTC - Expected goals of today's training - Situation analysis on parking - Parking management interventions - Institutional and legal framework - Issues and benefits of parking management - Integrated parking policy and strategies - Planning toolkit	- Objective of JICA PPTMTC - Expected goals of today's training - Situation analysis and issues arising for public transport in Phnom Penh - Public transport priority measures across the world - Draft urban transport development strategy proposed by JICA Result of Trial test for Bus Priority Control Bus Priority Measures for Bus Line 4

4) Implementation of training: Groupwork

Traffic management groupwork (Group B)



PT priority measures groupwork (Group A)



4.4 Overall Evaluation of the PPTMTC Training

- These training programs were conducted to improve the operational maintenance and management capacity of the Phnom Penh Traffic Control Center. As we have seen above, it was confirmed that the attitude and motivation of the participants have increased.
- Each training course is not standardized in content and method, but is conducted in a unique style according to the instructors' backgrounds and themes, and is designed to provide participants with the opportunity to learn from each other's experiences.

Results of Pre- and Post Evaluation of Training

- A target score of 60 points was set, and evaluation tests were conducted before and after the training regarding maintenance management, traffic signal control, and communication systems. The results are shown in the table on the right. Although the target score was achieved for training on traffic control and communication systems, maintenance management was not achieved, although the rate of increase before and after the training was high.

■ Score of Pre- and Post Evaluation Test

Type of Training	Pre-test	Post Test
Maintenance	7.8	44.2
Traffic Signal Control	16.5	72.4
Communications	34.7	61.2

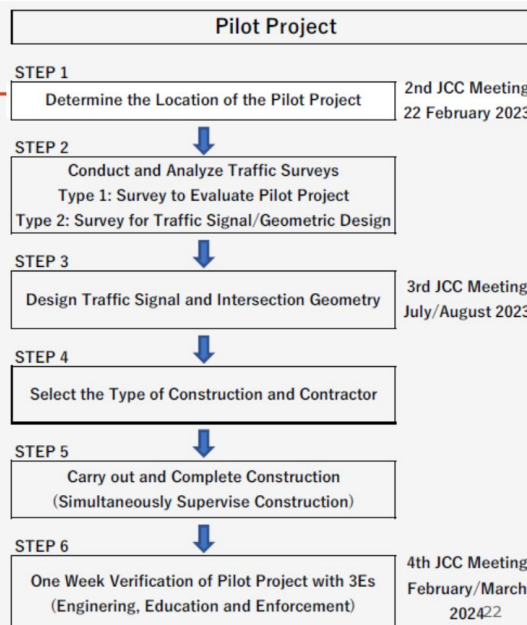
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5. Pilot Project

5.1 Outline of the Pilot Project

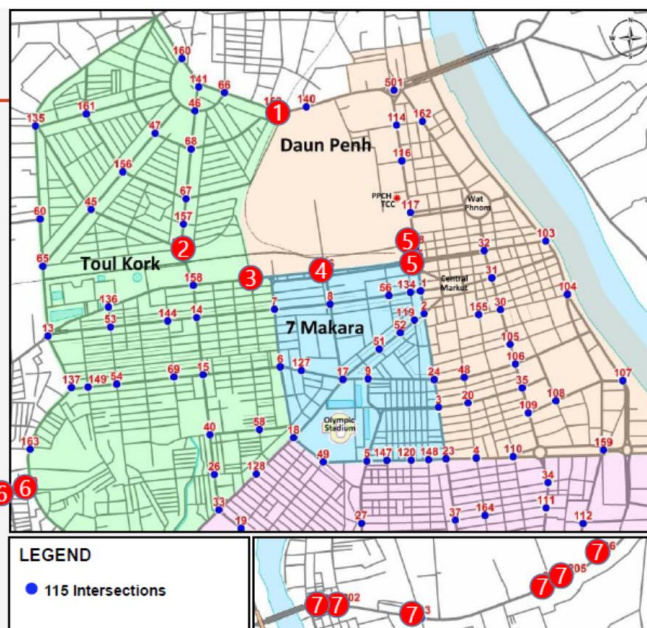
The pilot project is part of the PPTMTC training as well as materials for the training. Therefore, the location of the pilot project was decided through discussions with TCC staff and JICA experts in addition of the Contractor's comments. And after that the location was also coordinated with DPWT Director, Deputy Director, Phnom Penh Traffic Police officers, etc. mainly for engineering and safety aspects.

A pilot project is a whole series of activities as shown on the right.



Location of the Pilot Project

- (1) Between #140 and #152: To cope with City Center development
- (2) #502: To improve the signalized intersection from roundabout
- (3) #28: Additional left-turn arrow
- (4) #126: To cope with intersection improvement, mainly revision of the signal phasing/timing
- (5) #25 and #118: Coordination of two intersections in the CBD
- (6) #59 and St.2004/St.371: Coordination of two intersections at the CBD fringe
- (7) #201 - #206: Connecting between TCC and 6 intersections along NR No.1



5.3 Proposed Pilot Project

- (2) #502: To cope with intersection improvement

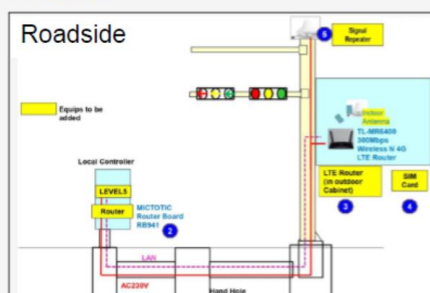
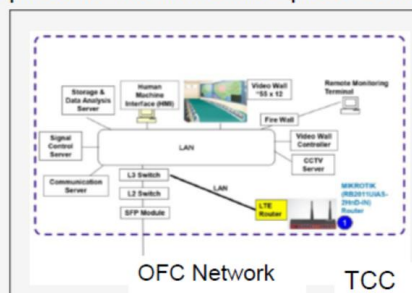
From Roundabout to 5-leg Signalized Intersection



5.3 Proposed Pilot Project

(6) #201 - #206:
Connection TCC
and 6
intersections
along NR No.1

The 6 intersections along NR No.1, which will have a wireless connection to TCC, will be used to solve problems/issues at these intersections. As a result, all 115 signalized intersections developed by the Japan Grant Aid project will be connected to TCC. Also, if the pilot project of this new communication system is successful, it can be one of the alternatives to the communication system when the traffic control system is expanded to the suburban area. There is also the advantage that all the wireless routers (yellow devices in the image below) required for this trial can be procured in Cambodia.



6. Sustainable Procurement for the Pilot Project

For Sustainable Maintenance of Traffic Control Systems

◆ Procurement of Japanese products and services for critical components of TCC

- Signal controllers
- Media converters
- TCC program changes, etc.

◆ Equivalent products that can be procured in Phnom Penh

- Signal poles
- Signal lanterns, etc.

Promote genericization and make it easier for TCCs to procure and maintain.

Items	Grant Aid	Pilot Project
Civil Works	Cambodia	Cambodia
Signal Pole	Thailand	Cambodia
Signal Lantern	Japan	Third Country
Local Controller	Japan	Japan
TCC Equipment/ Software	Japan	Japan

■ What Issues to Discuss In This 2nd JCC Meeting

1. How to Officially Approve TCC Organization in PPCA/DPWT
☐ Submit the first draft letter to the DPWT Director on 20 February 2023
2. PPTMTC Training Results ☐ Evaluate the technical level of the TCC staff and make effective use of it in future PPTMTC activities.
3. Location of Pilot Projects ☐ The pilot project is part of the PPTMTC training as well as materials for the training. The pilot project is not just about designing of signalized intersections, but as shown in Sheet 25, it also involves executing a lot of steps, so it takes nearly a year from start to finish. Therefore, considering the overall project period and other factors, it is necessary to determine the target locations in this JCC meeting.
4. Sustainable Procurement for Pilot Project ☐ For the sustainability of TCC operation, it is extremely important to ensure the basic performance of equipment and to purchase equipment quickly and at a low cost.
5. Warranty Inspection Period of the Pilot Project ☐ Since this project is a technical cooperation project, we would like the warranty period to be set within the project period. And design and construction will be done as a part of training by collaboration with TCC, PPCH/DPWT and JICA experts.

ANNEX11-3: 3rd JCC Meeting

Minutes of the 3rd Joint Coordinating Committee Meeting**of****The Project for Capacity Development on Comprehensive Traffic Management Planning and Traffic Control Center Operation and Maintenance in Phnom Penh Capital City (PPTMTC)**

The 3rd Joint Coordinating Committee (JCC) meeting between Phnom Penh Capital Administration (PPCA), Department of Public Works and Transport of Phnom Penh (DPWT), Japan International Cooperation Agency (JICA), and the concerned members of the Project for Capacity Development on Comprehensive Traffic Management Planning and Traffic Control Center Operation and Maintenance in Phnom Penh Capital City (PPTMTC) was held in a hybrid format, on-line and in-person at Phnom Penh Capital Administration (PPCA) on 14th of August, 2023. The comments and the discussions were made on several items as described below.

1. Opening remarks by PPCA and JICA:

H.E. Suy Serith, Vice Governor of PPCC and Vice-chair of JCC, welcomed all the participants and expressed his sincere thanks to the Government of Japan for extending support through JICA, as well as to JICA expert team for the implementation of the PPTMTC project. He mentioned that this project duration was starting in January 2022 to February 2025. He continued stating that this project will be implemented including the installation of traffic signals, maintenance management of TCC, expansion capacity of TCC staffs, DPWT officials and Traffic Police. He also added that this meeting will put into the discussion for some challenges of the pilot project and there is another presentation about parking management which is proposed by JICA expert team. He further added that parking management is also important for the current situation of Phnom Penh capital city. Before closing his remarks, he wishes this JCC meeting a successful and fruitful discussion.

Mr. Kazumasa Sanui, Chief Representative of JICA Cambodia office, welcomed all the participants. He continued that the rapid urbanization and economic growth of Cambodia lead to face with many challenges, one of those challenges is the increased number of vehicles in the city which causes traffic congestion and environmental impact. This project was designed with the purpose of improving traffic management and securing safety for the city of Phnom Penh by enhancing the capacity of operation, maintenance and management of traffic control system established by Japan Grant Aid project. To achieve these, this project has been implementing many measures such as re-install new traffic signals at specific locations to optimize traffic flow, mitigating the local camera surveillance to analyze the traffic flow, and also parking management plan in Phnom Penh to ensure smooth traffic and safe in Phnom Penh city. He added that the project has smoothly progressed and had positive results. He hoped that this meeting will bring a fruitful discussion.

2. Contents of Presentations:

Mr. Masato Koto, team leader of the project, made a presentation on the PPTMTC project covering outline of the project, DX and PPTMTC project, project schedule and pilot project locations. For the details, please refer to the presentation material.

Mr. Kiminari Takahashi, Traffic Management Planning Expert, JICA PPTMTC Project Team, made presentation on parking management plan in Phnom Penh. For the details, please refer to the presentation material.

3. Main Points of Discussion:

No.	Comments/Questions	Answers
1.	Pilot Project Locations	
(1)	- H.E Suy Serith suggested the project team to consider adding sound alert device to the traffic signal.	
(2)	Mr. Chou Kimtry , Deputy Director of Department of Public Works and Transport of Phnom Penh Capital (DPWT), said that the JICA Project Team has been working closely and fully discussed with DPWT on the pilot projects. He continued that DPWT agreed with the pilot project's locations. He further added that if there is no more revision, the installation work of pilot project will be scheduled to implement in November 2023. With the implementation of these pilot projects, we will observe.	
(3)	Mr. Ly Visal , Deputy Chief of Road Traffic Police office of the Commissariat of Phnom Penh Police, said that JICA project team has discussed with traffic police earlier. He continued that Phnom Penh traffic police agreed with the proposed pilot project locations.	
(4)	H.E Nuon Pharat agreed with the implementation of pilot project and asked CBA about the possibility of proposing new bus line along the new road connecting from National Road No.5 to the pilot location No.1 (City Center).	- Mr. Keo Channarith , Governor of CBA, responded that there is a possibility to apply bus route along the new road, as currently an existing bus route (Line 12) is linked with this area. He added that the study on the ridership demand along this new road is also important for the consideration. CBA will conduct the further detailed study on this road.
(5)	Dr. Phun Vengkheang , Head of Transport and Infrastructure Engineering Department from Institute of Technology of Cambodia (ITC), agreed with the implementation of pilot project locations and with the selected countermeasures to improve traffic flow at those proposed locations, which are technically appropriate. He continued that the combining of new road with bus route is also good for traffic flow improvement, but the project team should also consider another alternative such as sky train for long-term consideration, as well as the parking management along this new road.	
(6)	Mr. Ou Thunsal , Deputy Chief of Department of Urban Public Transport (MPWT), agreed with the project team regarding the proposal of the pilot projects. And he further suggested as the followings: 1. to equip sound alert device to traffic signal since it is convenient for the people with disabilities. 2. to install more priority signs 3. to consider providing free-right turn lane at the intersections to smooth traffic flow	

	4. MPWT has been developing parking masterplan covering the transport management hub which allow people from provinces to be able to change the transport mode, from private to public mode to travel into the city. He continued that MPWT is preparing Prakas for Parking Law which will be amended to traffic law in the future. 5. to consider the parking plan before any new major road construction and new buildings.	
(1)	H.E Nuon Pharat asked that if there is any detailed discussion between project team, MPWT and DPWT on parking management plan in Phnom Penh? HE strongly advised public sector should manage and operate parking in order to make compliant with law/regulation.	- Mr. Kiminari Takahashi, JICA Expert Team, said that he has been supporting the MPWT currently to draft the Parking Law. He continued that he suggested to MPWT to clearly define the type of parking and as well as define who is the owner/operator. After the parking law is enacted, we can define who is the owner/operator whether private sector or government authority.
(2)	H.E Suy Serith raised the concern about the parking management plan in Phnom Penh since it is difficult to enforce illegal parking. He continued that when the parking law is enacted, it will facilitate local authority or traffic police for enforcement actions.	
(4)	Mr. Moeung Sophan, advisory of DPWT, suggested the project team that not only for parking management, but the project team should also consider about the taxi way and paratransit problem in the city.	
(5)	Mr. Chou Kimtry suggested that when conducting the study of on-street parking, the one-way system should be included in the study.	Mr. Kiminari Takahashi responded that on-street parking studies generally involve the one-way system.

4. Closing and Conclusion:

Before closing, **H.E Nuon Pharat** summarized and concluded the main points of discussion during the 3rd JCC meeting as the followings:

- (1) The proposed pilot projects is agreed in principle by the meeting ; however, the pilot project should be implemented based on the 3Es approach, 1) Engineering: TCC staffs and DPWT officials should carefully study together on how to install traffic signals; 2) Education: DPWT official and the concerned authorities should work collaboratively to disseminate the information and traffic safety education to the citizens especially those living along the pilot locations to engage them to the project's activities; and 3) Enforcement: Traffic police is also requested to contribute to this activity to successfully implement this project.
- (2) For parking management in Phnom Penh, we has no objection nor approval on this proposal, however, we support the study of parking management plan.
- (3) After having Prakas on Parking Law issued, we would like to request JICA to consider the possibility of conducting the feasibility of parking development plan in the next Technical Cooperation Project.
- (4) As for on-street parking is involved with many streets, the project team should carefully study to clearly define the areas where charged and free parking will be applied.

(5) Not only traffic signal and parking management, but also public transport is very important to improve urban transport

Suggestions:

- Request JICA to continue the cooperation on bus priority lane project. Without priority lane, the service of the city bus remains limited.
- Request MLIT of Japan (through the Embassy of Japan in Cambodia) to continue the cooperation on Smart Bus Shelter project since the project has already completed the feasibility study.

The meeting was adjourned at **16:45 PM**.

CONFIRMED BY:



H.E. NUON PHARAT
Vice Governor
Phnom Penh Capital City



Mr. KAZUMASA SANUI
Chief Representative
JICA Cambodia Office



Mr. MASATO KOTO
Team Leader
JICA Expert Team

2. Photos







Participants of 3rd JCC meeting

3. Presentation Material


Phnom Penh
Capital City


Department of
Public Works
and Transport


Japan
International
Cooperation
Agency

**Project for Capacity Development on
Comprehensive Traffic Management Planning
and Traffic Control Center Operation and Maintenance
in Phnom Penh Capital City (PPTMTC)**

3rd Joint Coordinating Committee Meeting

Schedule and Implementation Plan of Pilot Project
Parking Management Plan in Phnom Penh

14 August 2023

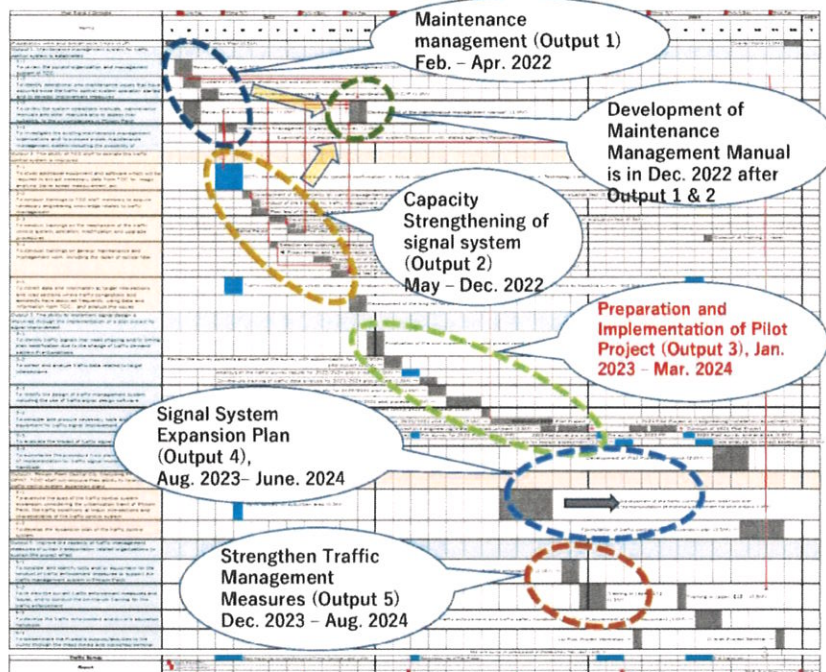

METS
RESEARCH & PLANNING, INC.
INTERNATIONAL DEVELOPMENT CENTER OF JAPAN
ORIENTAL CONSULTANTS GLOBAL Co., Ltd.

1. Outline of the Project

Project Name	Project for Capacity Development on Comprehensive Traffic Management Planning and Traffic Control Center Operation and Maintenance in Phnom Penh Capital City
Project Period	January 2022 to February 2025
Overall Goal	Sustainable Urban Transport Environment is Formed
Project Purpose	Traffic Management Measures Including Traffic Safety Measures in Phnom Penh is Improved
Expected Output	Output 1: Maintenance Management System of Traffic Control System is Established Output 2: Capacity of TCC Staff on the Operation of Traffic Control System is Strengthened Output 3: Capacity to Design Traffic Signals is Strengthened through the Implementation of Pilot Projects for Traffic Signal Improvement Output 4: Capacity of the Relevant Staff to Traffic Control in PPCA, DPWT and TCC Staff to Develop the Expansion Plan of Traffic Control System is Strengthened Output 5: Capacity of Urban Transport Related Organizations on Traffic Management Measures is Strengthened towards Enhancement of the Project Sustainability
Counterpart Institution	Implementing Agencies: Phnom Penh Capital Administration (PPCA), Department of Public Works and Transport (DPWT), Traffic Control Center (TCC) and Phnom Penh Traffic Police (PPTP)
Project Area	Whole Area of Phnom Penh

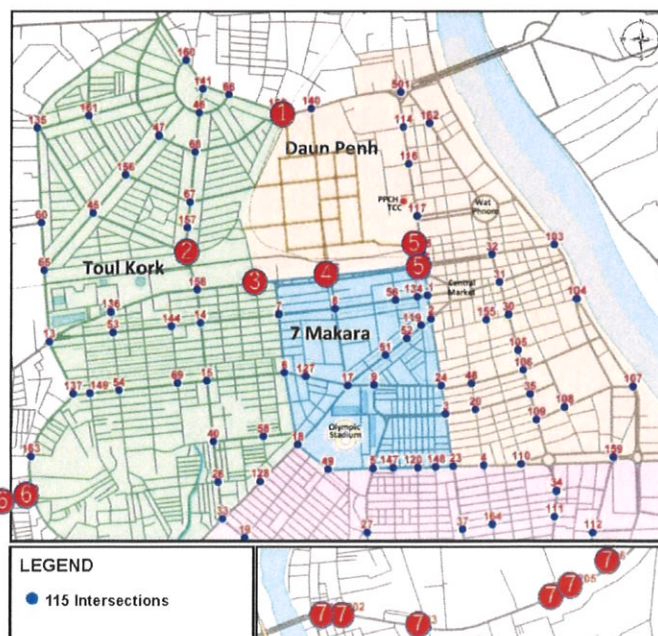
Project Schedule

- Project Schedule:
January 2021 – January 2025 (37 months)
- In 2022: Traffic signal maintenance management including Manual and TCC staff training
- In 2023: Pilot Project
- In 2024: Signal system expansion plan and Strengthen traffic management organization in PP.

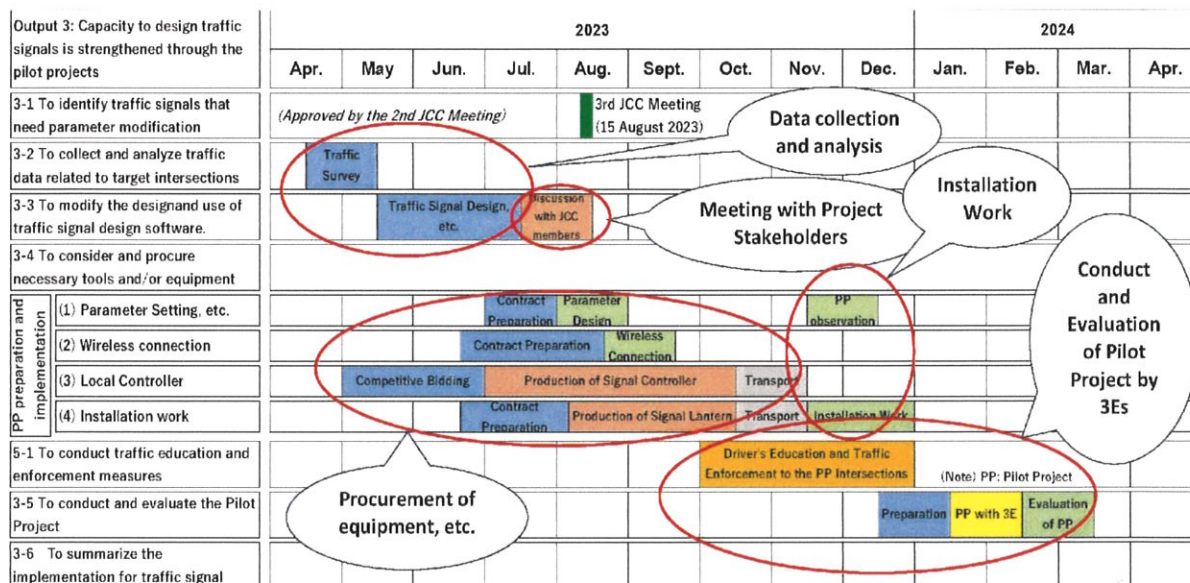


Location of the Pilot Project

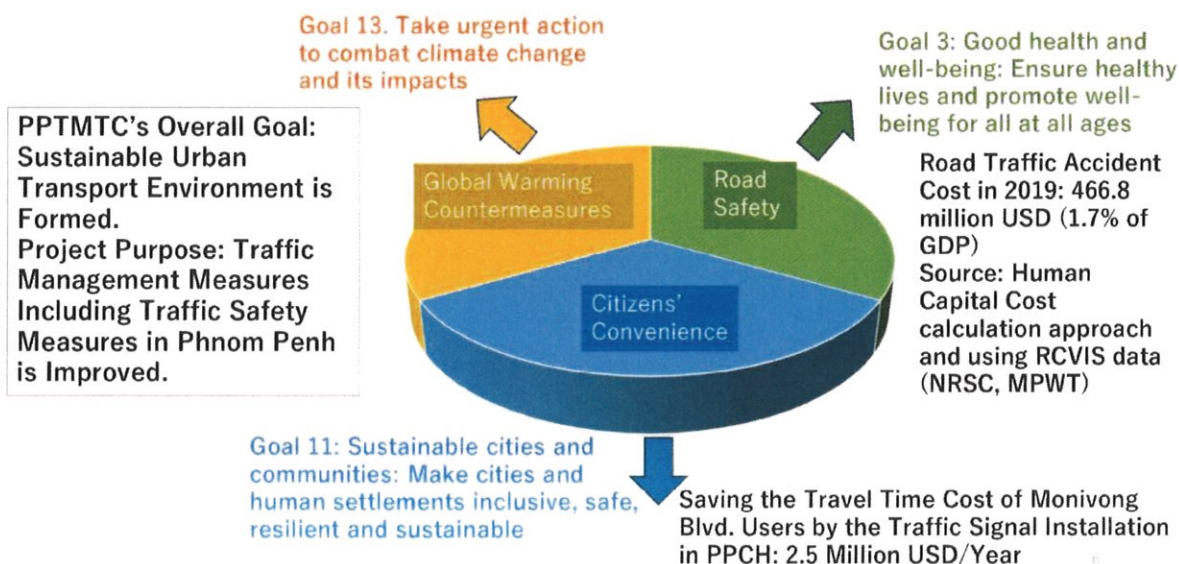
- (1) Between #140 and #152: To cope with City Center development (**new signal**)
- (2) #502: To improve the signalized intersection from roundabout (**new signal**)
- (3) #28: Additional left-turn arrow (**revision of the phasing + left-turn arrow + revision of road marking**)
- (4) #126: To cope with intersection improvement, mainly revision of the signal phasing/timing (**revision of the phasing**)
- (5) #25 and #118: Coordination of two intersections in the CBD (**introduction of 3Es**)
- (6) #59 (**revision of phasing**) and #59 West (**new signal**): Coordination of two intersections at the CBD fringe
- (7) #201 - #206: Wireless connection between TCC and 6 intersections along NR No.1 and #59 West (**wireless connection**)



Pilot Project Schedule (April 2023 - April 2024)



PPTMTC Pilot Project and Its Project Design Matrix, and SDGs

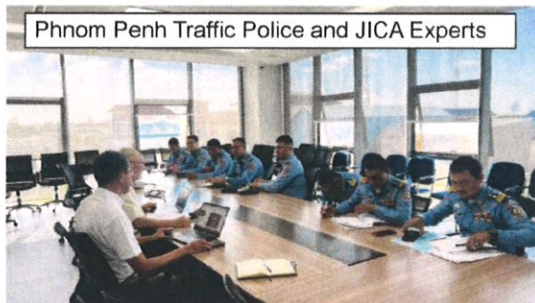


How to Implement the Signalized Intersection for Pilot Project

- Engineering and Education aspects are discussed between DPWT, TCC Staff and JICA Expert Team
- Enforcement aspects are discussed with Phnom Penh Traffic Police Department



TCC Staff and JICA Experts



Phnom Penh Traffic Police and JICA Experts



DPWT, TCC Staff and JICA Experts

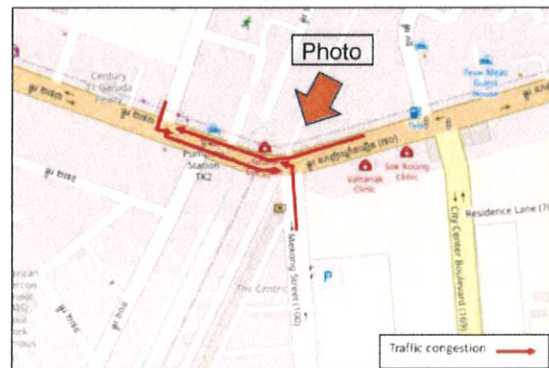
Current Status and Issues of Pilot Project Intersections (1)

1. #140 West

- From 3-leg to 4-leg intersection in the near future
- Traffic volume at this intersection will increase in the future
- New road has the potential of introduction of public transport system
- Phasing plan will be reconsidered after completion of new road

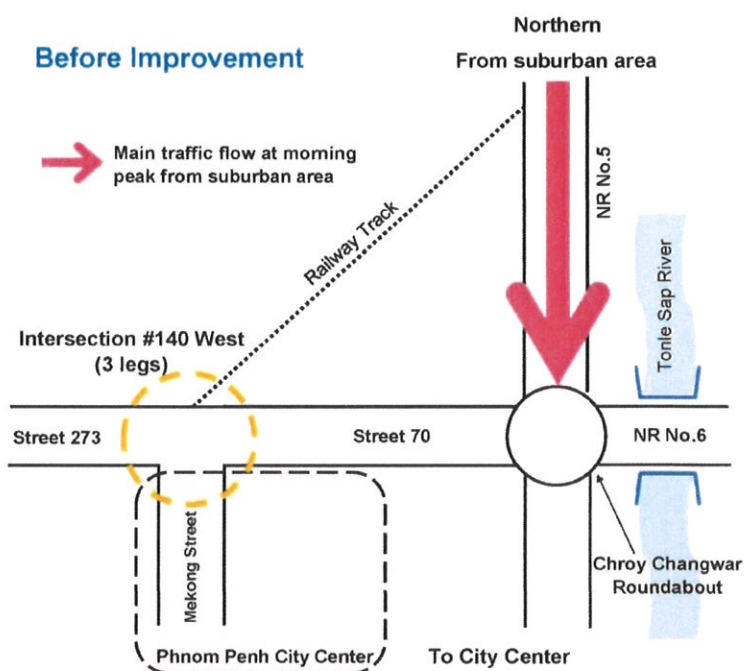


Photo : Northern Access Road

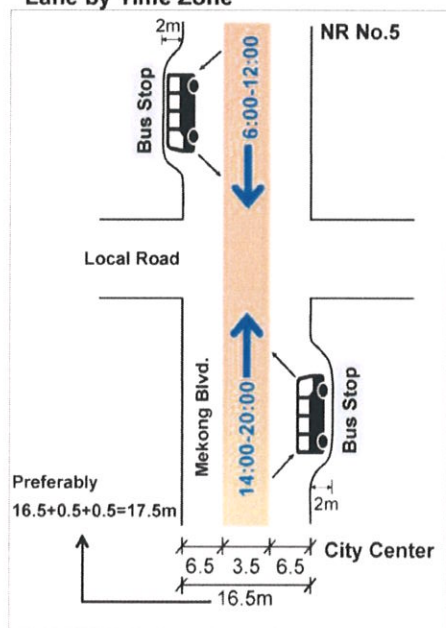




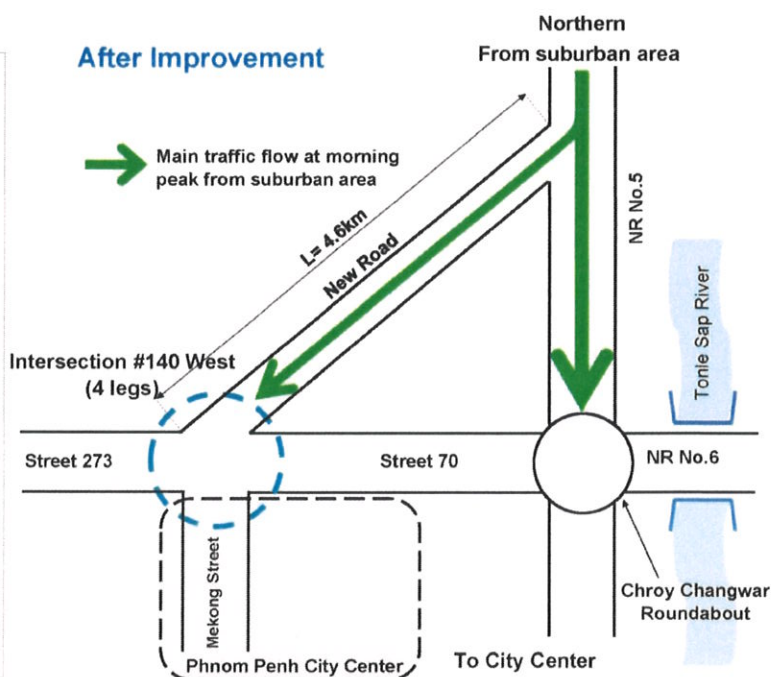
Before Improvement



Proposed One-way Bus Exclusive Lane by Time Zone



After Improvement



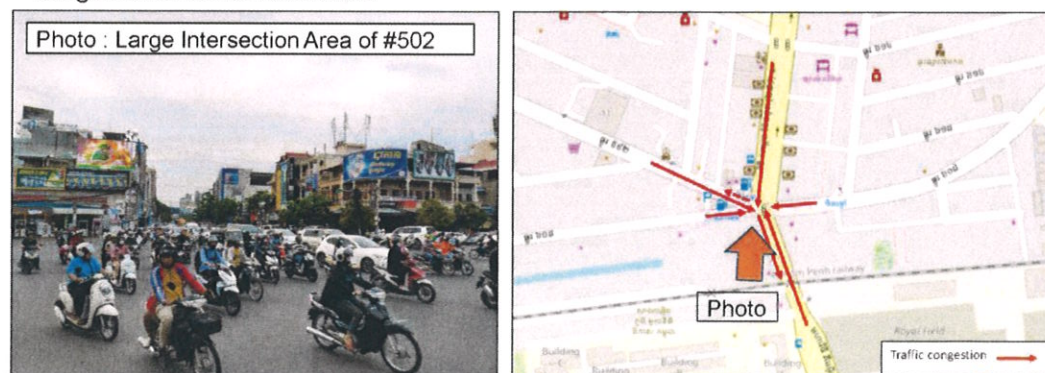
Traffic Signal Phasing Plan at #140 West

Lane Configuration (Current)	Phase (Current)					Flow ratio of intersection		
	1	2	3	4	5	By time zone		
	No Signal					Morning		
						Afternoon		
						Evening		
Traffic conditions								
· The intersection is currently an unsignalized T-junction, which leads to frequent traffic congestion, especially on the main road.								
· At Outflow B, traffic is congested due to merging and diverging at a nearby unsignalized intersection.								
Lane Configuration (Proposal)	Phase (Proposal)					Flow ratio of intersection		
	1	2	3	4	5	By time zone		Difference
						Morning	-	-
						Afternoon	-	-
						Evening	-	-
Proposal								
· Consider changes in traffic conditions after the opening. In particular, phase is proposed to facilitate control of left-turning vehicles.								

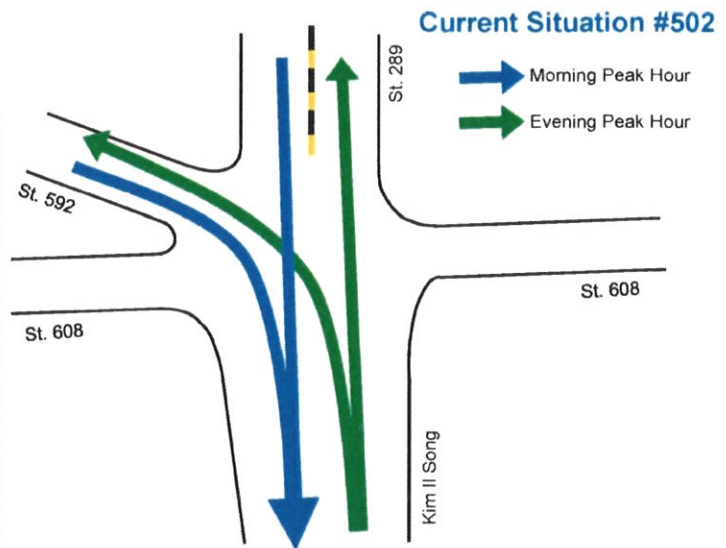
Current Status and Issues of Pilot Project Intersections (2)

2. #502

- Converted signalized intersection from 5-leg roundabout
- Large intersection area causes the lost time of the traffic signal
- Generates crossing several traffic flows under the current phasing pattern, which causes a dangerous situation to drivers

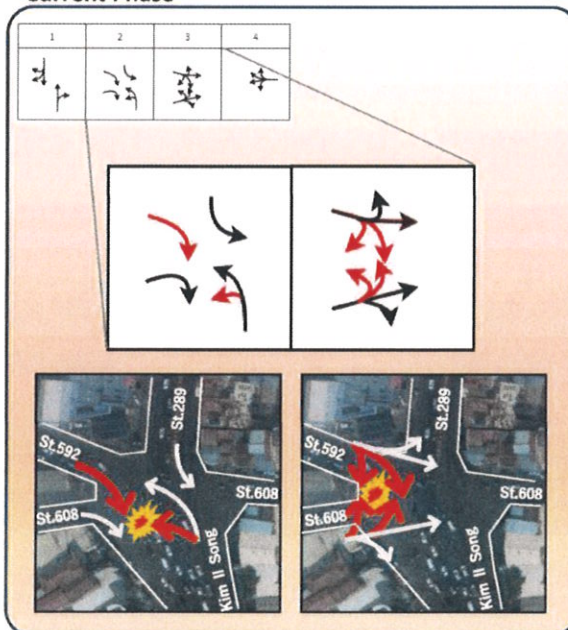


Current Status and Issues of Pilot Project Intersections at #502

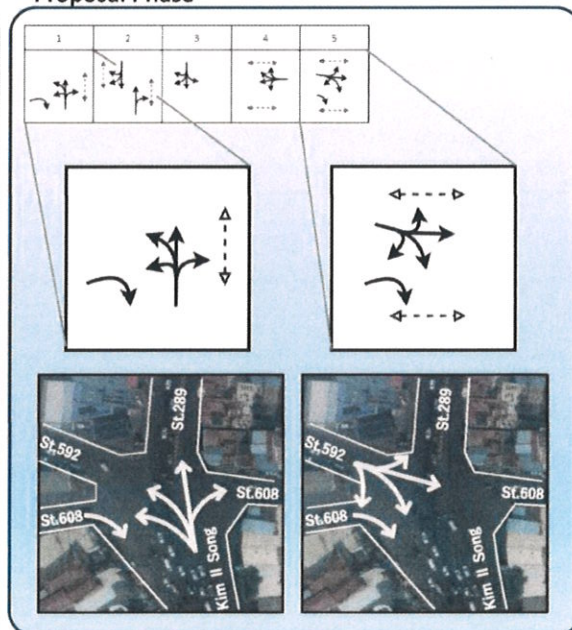


To minimize the intersection size

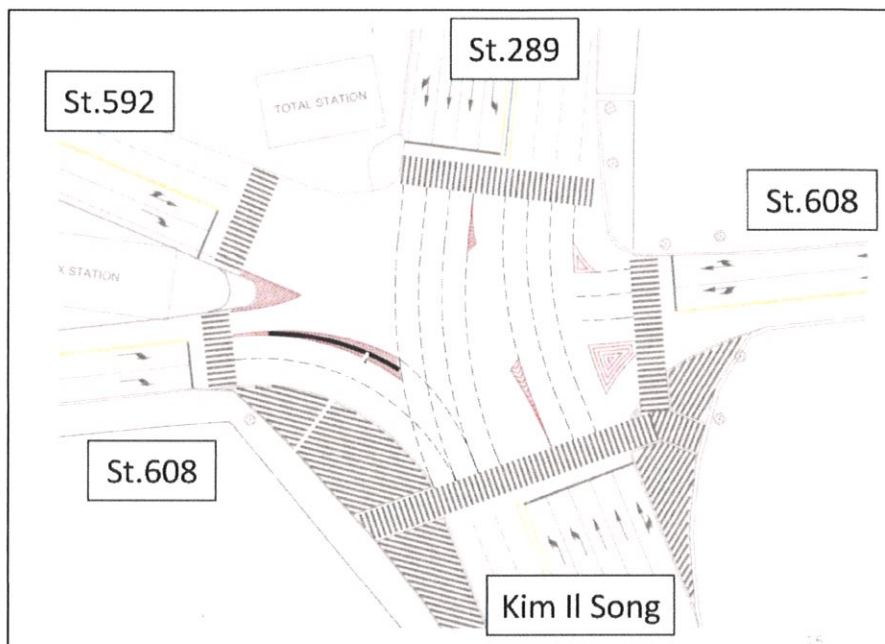
Current Phase



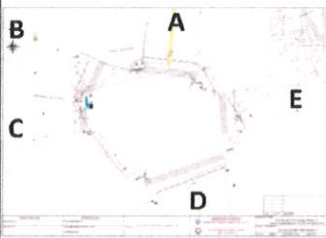
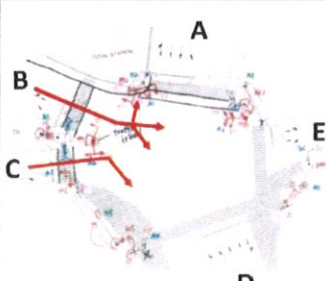
Proposal Phase



Installation of Guide Marking and Island Marking at #502



Traffic Signal Phasing Plan at #502

Lane Configuration (Current)		Phase (Current)					Flow ratio of intersection	
		1	2	3	4	5	By time zone	
							Morning	0.945
							Afternoon	0.729
							Evening	1.099
		Traffic conditions • In Phases 2 and 3, vehicles conflict and it is dangerous.						
Lane Configuration (Proposal)		Phase (Proposal)					Flow ratio of intersection	
		1	2	3	4	5	By time zone	
							Morning	0.861
							Afternoon	0.748
							Evening	1.070
		Proposal • Add right-turn arrow on inflow C-only restriction on Inflow Road C. • Main road has very different left turn volume so apply red & rag phasing.						
							Difference	
							Morning	-0.084
							Afternoon	-0.197
							Evening	-0.029

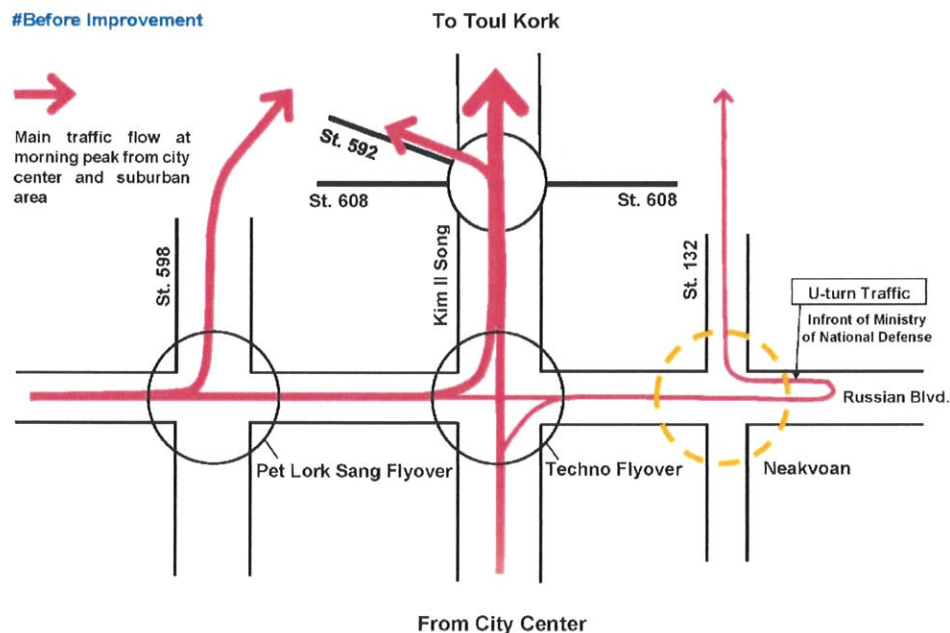
Current Status and Issues of Pilot Project Intersections (3)

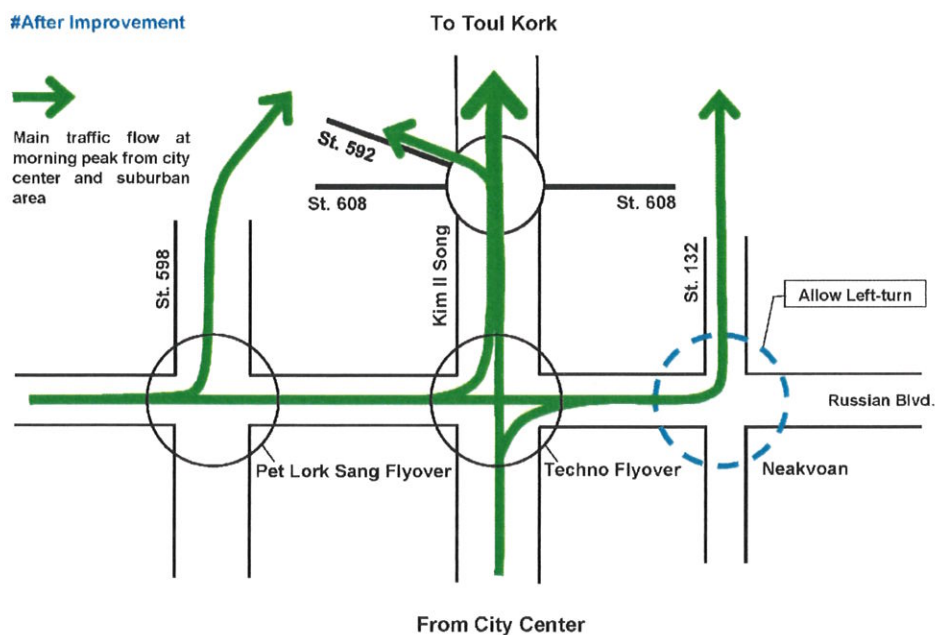
3. #28

- 4-leg intersection but currently prohibits left turn from the west (airport side) to the north.
- Widened north access and expected to become a new access road to the Toul Kork area
- Easing traffic concentration on #502
- Limited width of the Russian Blvd. (W = 17.6m), and needs careful installation of left-turn lane



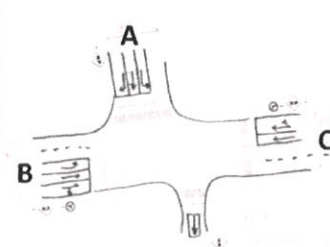
#Before Improvement





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Traffic Signal Phasing Plan at #28

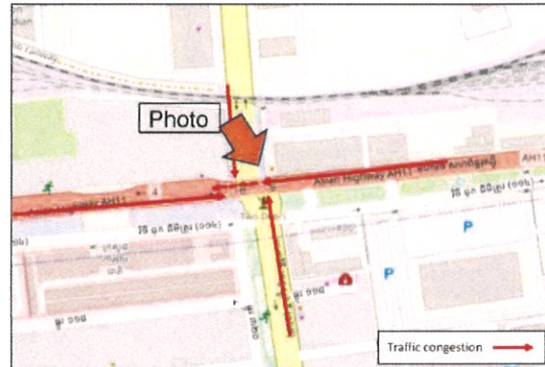
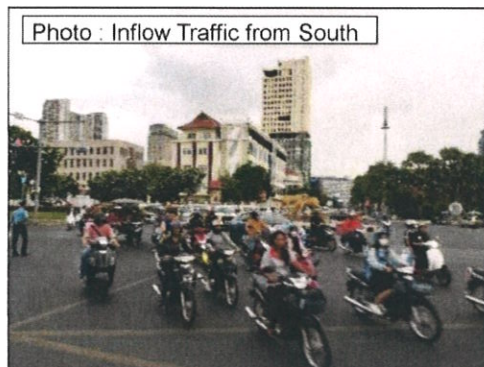
Lane Configuration (Current)	Phase (Current)					Flow ratio of intersection		
	1	2	3	4	5	By time zone		
						Morning	1.181	
						Afternoon	0.758	
						Evening	1.056	
	Traffic conditions							
• Although left turns are prohibited on the main road, traffic congestion caused by illegal left-turning vehicles occurs on approach B.								
• At approach A, right-turning vehicles often ignore the signal.								
Lane Configuration (Proposal #1)	Phase (Proposal #1)					Flow ratio of intersection		
	1	2	3	4	5	By time zone		Difference
						Morning	0.923	-0.258
						Afternoon	0.635	-0.123
						Evening	1.182	0.126
	Proposal							
• Allow left-turn at inflow B and add time-differentiated signals.								
• By controlling left-turn demand with traffic signals, safety can be improved.								

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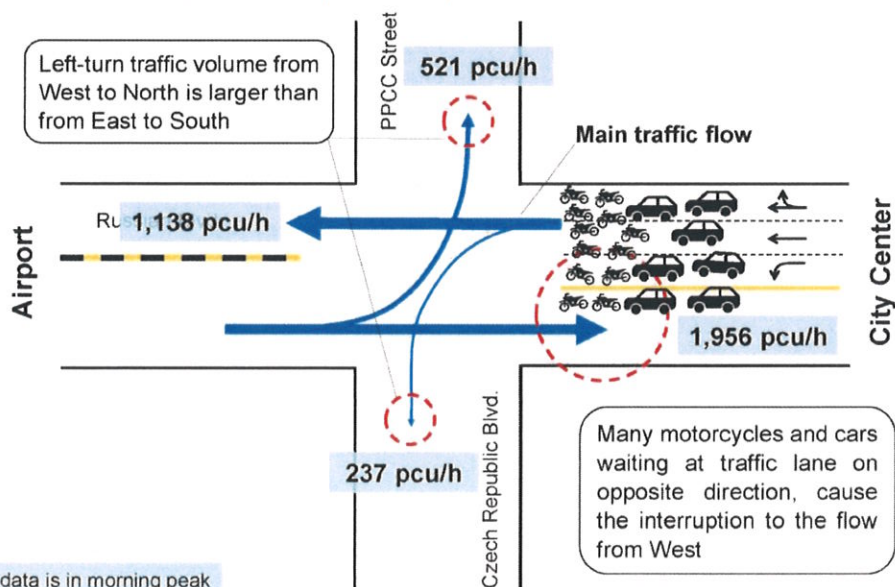
Current Status and Issues of Pilot Project Intersections (4)

4. #126

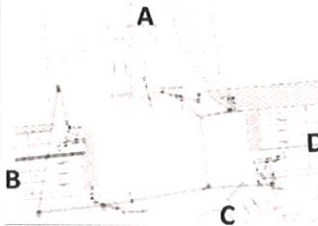
- T intersection became a 4-leg intersection
- It is an intersection of radial (Russian Blvd.) and circular (Czech Blvd.) roads, the major arteries that form the framework of Phnom Penh City
- Therefore, a large volume of traffic is concentrated in this intersection



Current Situation #126 (Kdan Pir)



Traffic Signal Phasing Plan at #126

Lane Configuration (Current)	Phase (Current)					Flow ratio of intersection	
	1	2	3	4	5	By time zone	
						Morning	0.926
						Afternoon	0.717
						Evening	0.970
Traffic conditions • Each inflow road is congested.							
Lane Configuration (Proposal)	Phase (Proposal)					Flow ratio of intersection	
	1	2	3	4	5	By time zone	
						Morning	0.746
						Afternoon	0.630
						Evening	0.939
Proposal • Propose time-differentiated signaling on main roads. • Change Phase 1 to westbound from eastbound.							
						Difference	
						Morning	-0.180
						Afternoon	-0.087
						Evening	-0.031

Current Status and Issues of Pilot Project Intersections (5)

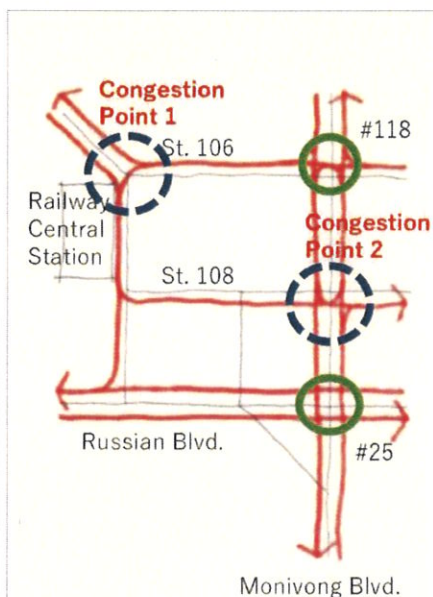
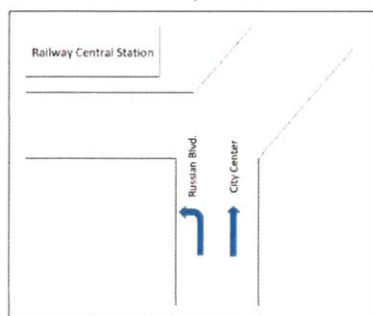
5. #25 & #118

- Cross point in the CBD between Russian Blvd. and Monivong Blvd., which are major radial arterial roads
- Railway central station is located nearby, many local roads are located within 160m, and very dense
- Traffic signal parameters have been generally adjusted by the efforts of TCC staff
- Lack of drivers' traffic safety education and the lack of traffic enforcement by the traffic police officers (not keeping to road lanes, illegal parking in and between intersections, etc.) are causing a lot of traffic congestion.



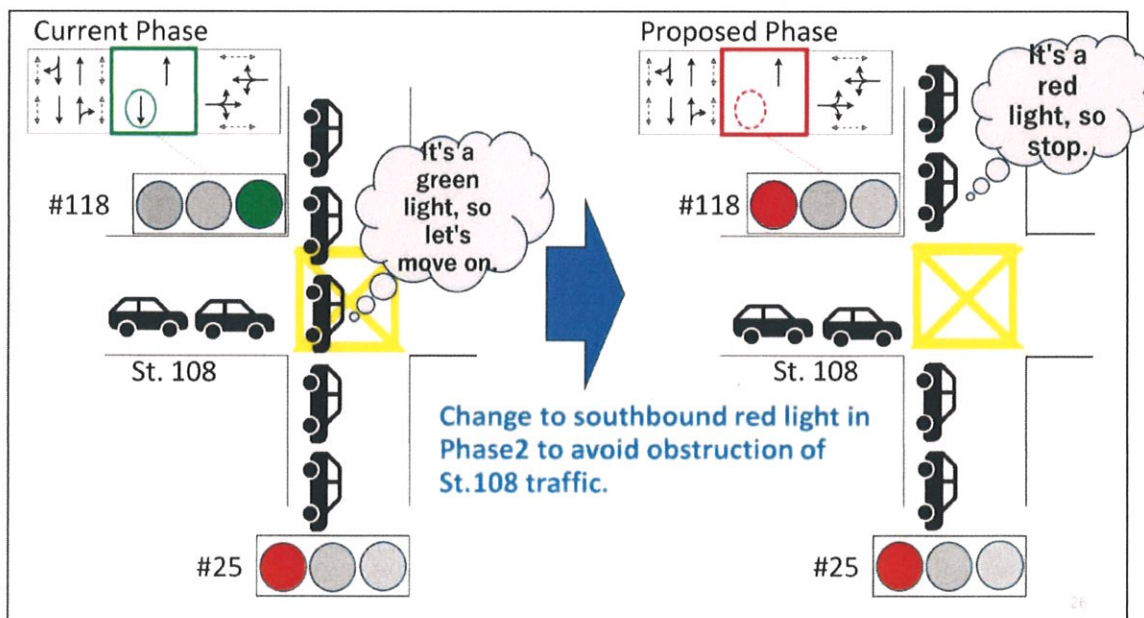
Traffic Congestions between #25 and #118

Introduction of 3Es Activities (Engineering, Education and Enforcement)



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Countermeasures to Congestion Point 2 at Monivong Blvd./St. 108

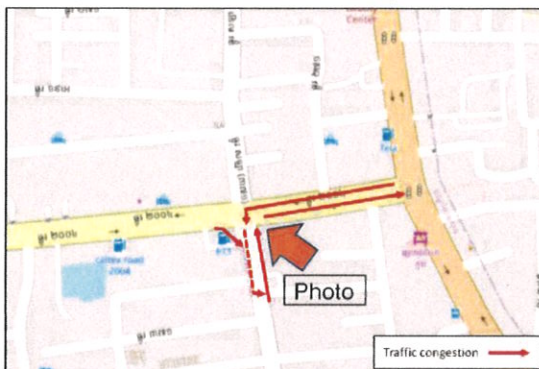


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Current Status and Issues of Pilot Project Intersections (6)

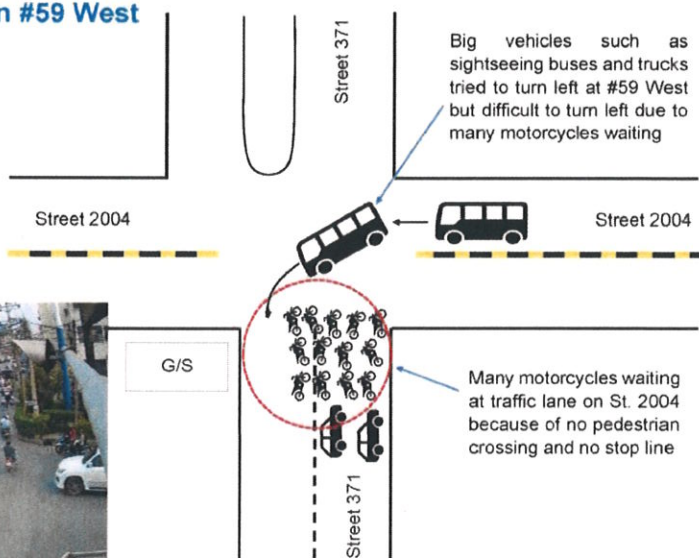
6. #59 & #59 West

- Traffic signal #59 networked with TCC, and #59 West developed by DPWT as stand alone (distance between both is about 200m).
- Between the two intersections, serious traffic jams occur during peak hours.
- Factors are (1) there is no road marking or it is not clear. (2) traffic rules such as traffic signals are not obeyed, and (3) large buses and trucks enter the local road of St. 371
- TCC plans to adopt a wireless connection system (between #59 and #59 West).

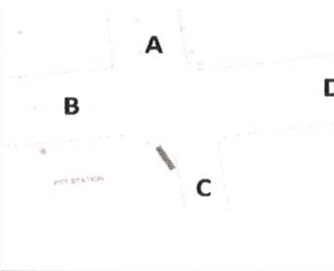
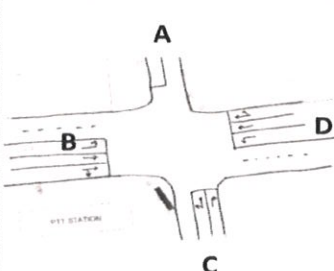


Current Situation #59 West

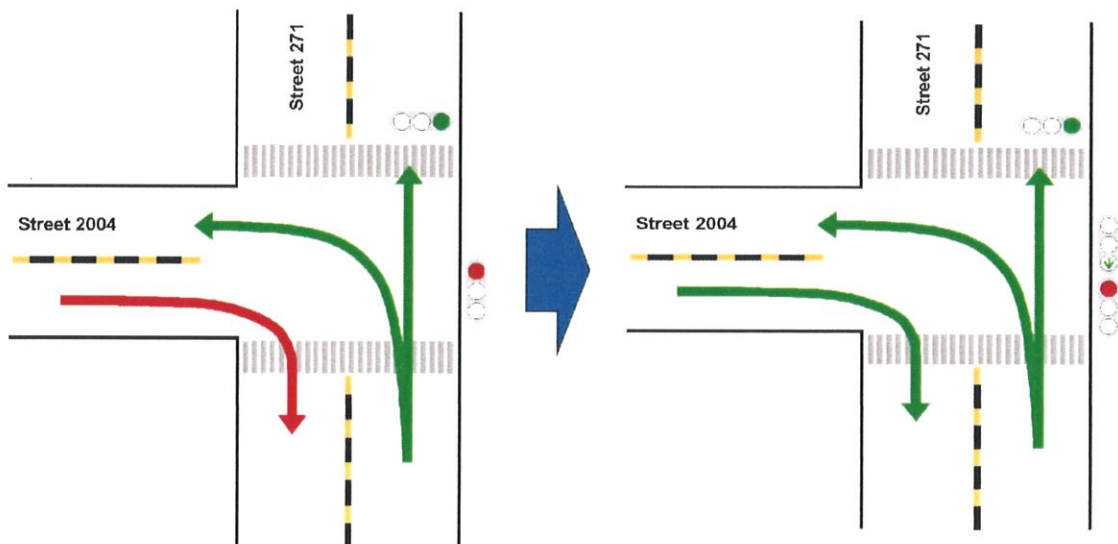
Heavy truck tried to turn left to narrow St.371 at #59 West



Traffic Signal Phasing Plan at #59 West

Lane Configuration (Current)	Phase (Current)				Flow ratio of intersection		
	1	2	3	4	By time zone		
					Morning	0.955	
					Afternoon	0.935	
					Evening	1.154	
	Traffic conditions						
•The congestion that occurs at approach D is caused by left-turning vehicles. •Most right-turning vehicles on approach D pass through the gas station site. •Traffic congested at Outflow C due to the many left-turn traffic at non-signalized intersection and merging from the gas station.							
Lane Configuration (Proposal)	Phase (Proposal)				Flow ratio on intersection		
	1	2	3	4	By time zone		Difference
					Morning	0.836	-0.119
					Afternoon	0.808	-0.127
					Evening	0.920	-0.234
	Proposal						
•Reducing the phase decreases Flow ratio of intersection. •The congestion that occurs at approach D is caused by left-turning vehicles. •The left-turn demand on approach B is low and will be handled in Phase 2.							

Before and After Improvement at #59



Introduction of 3Es in the Pilot Project

1. Meaning of traffic signal, green: go, yellow: caution and red: stop
2. Straight going vehicles do not stop at left-turn lane (follow the road marking)
3. No parking in and around the intersection
4. Follow yellow box in the intersection (do not stop in the intersection)
5. Follow the traffic rules in the Pilot Project

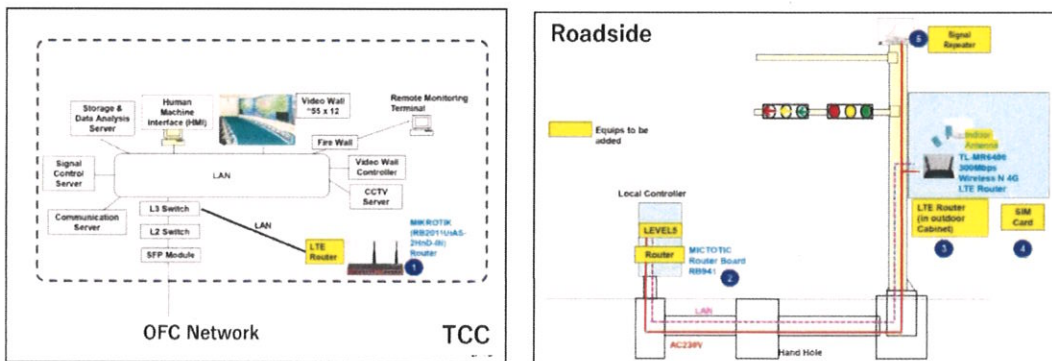
For examples, #502: St. 608 has only left-turn and #59 West: Ban of large vehicles along #371 south



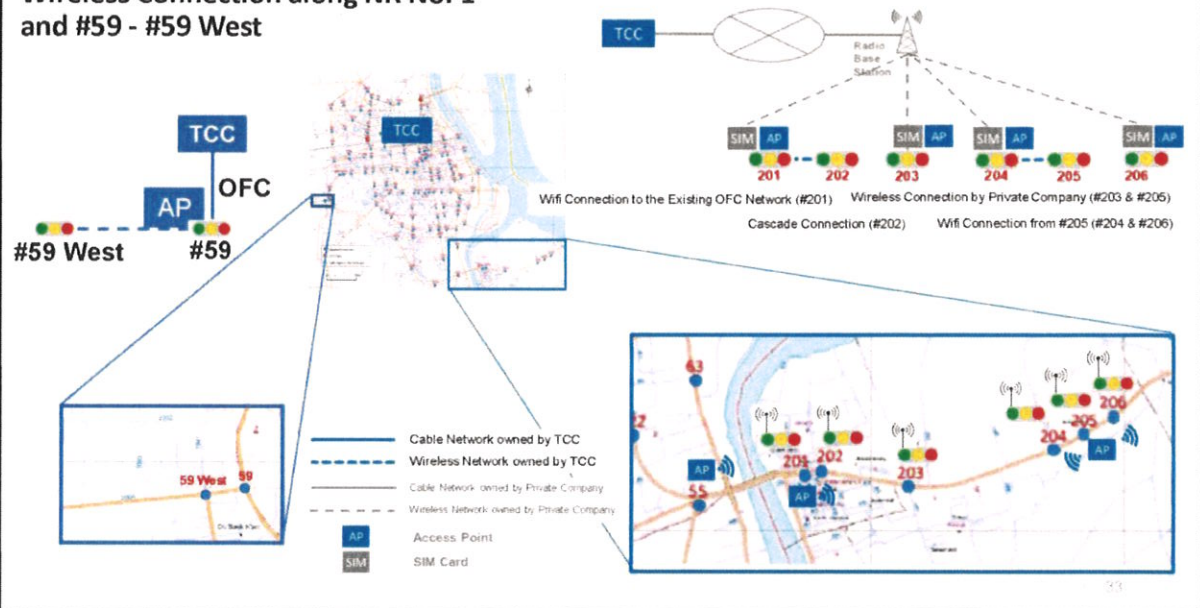
- Dissemination of the traffic safety education through SNS, at roadside and at schools, etc., and enforcement by traffic police
- And review the Pilot Project after evaluation

7. Wireless Connection

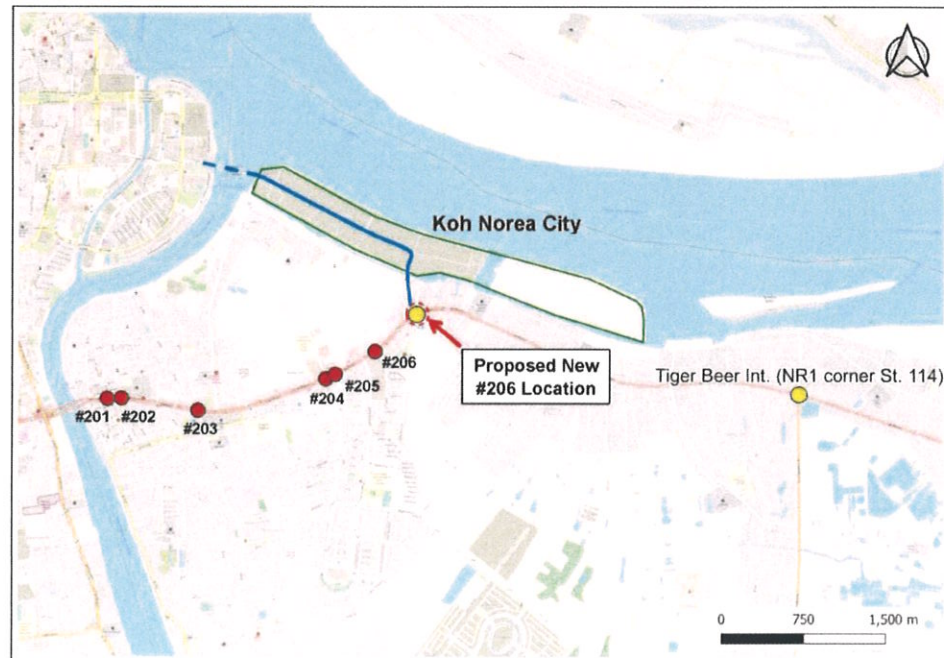
- Only 6 intersections (NR No.1) not connected to TCC out of 115
- Proposed wireless connection to TCC, will be used to solve problems/issues at these intersections
- Also, it can be one of the alternatives to the communication system when the traffic control system is expanded to the suburban area.
- Advantage is all the wireless routers required for this trial can be procured in Cambodia



Wireless Connection along NR No. 1 and #59 - #59 West



Relocation of #206





Parking Management Plan in Phnom Penh

14th August 2023

JICA Expert Team for PPTMTC

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1. Background of Parking Management Plan

JICA PPTMTC aims at **strengthening capacity of urban transport related organizations on traffic management measures** and enhancing the project sustainability:

- In Sep 2022, intensive training conducted for traffic management and groupworks proposed traffic management implications, including (i) traffic circulation, (ii) parking management, (iii) public transport improvement.
- Since Dec 2022, MPWT and JET coordinated to draft the Parking Prakas and JET provided (i) Parking Law and Parking Planning Guideline in Japan, (ii) Draft Notice for Parking Management in Vientiane Capital, Laos.
- In April 2023, JET prepared draft Parking Management Plan for Phnom Penh thru engagement with concerned departments (MPWT, DPWT, DoF, DoUM, Selected Khan).

2. General parking issues in Phnom Penh

- No control on on-street parking especially at local roads
- On street parking causes safety and congestion problems
- Parking on footpath makes streets inaccessible
- No local recognition of '**setback parking**' as public space
- Free on-street parking vs paid off-street parking
- Parking regulation is not enforced
- Uncontrolled parking encourages commuters to use their car
- Non-existence of parking law/management guideline/standards
- No champion in parking management policy and implementation
- Loss of opportunity cost for parking levy and special-purpose fund

2. General parking issues in Phnom Penh



Legal or Illegal?
Who manages under which legal framework?

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2. General parking issues in Phnom Penh

Uniqueness of Set-back parking: Private asset owners build walkway in public space and use as parking space

On-street/Off-street/Set-back parking and responsibilities by concerned entities defined by Law/Regulation?



	On-street parking	Off-street parking	Set-back parking
Owned by	PPCA/Khan	Private/public	PPCA/Khan
Operated by	PPCA/Khan (mostly designated market)	Private/public	Private
Regulated/enforced by	Road traffic law but not enforced	Only compulsory parking regulation	NA

3. Previous and on-going parking management interventions

Various proposals and actions taken in improved parking management:

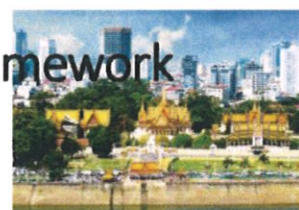
- JICA PPUTMP (2014)
 - Development of parking policy suggested
 - Parking management in CBD as priority traffic management measure
- Increase illegal parking fine (upto 25 USD) by MOI (2016)
- Parking ticketing system by Sonatora (2017)
 - 31 ticketing machine in Wat Ounalom
- Underground parking by Oversea Cambodia Investment Corporation (2018-)
 - 300 parking lots at 9,000 m2



4. Issues in institutional and legal framework

PPCA developed **Sustainable City Plan (2018-2030)** and included parking measures as priority mid-term measure.

→ Who is a champion? How to implement?



PHNOM PENH
SUSTAINABLE CITY PLAN
2018-2030



in use of e-bikes while at the same time addressing concerns related to safety thorough an integrated policy package.

23. Parking support package for Phnom Penh

In many places parked cars and motorbikes and encroachment by commercial activities make sidewalks impassable. This project envisages a package of measures to better regulate parking.

Medium
Term

- PPCA, MLMUPC, MPWT, Phnom Penh District and Commune authorities

24. Piloting pedestrianized areas

This project would support i) a consultative and awareness raising process involving residential and commercial residents,

Source: Phnom Penh Sustainable City Plan 2018-2030

Medium
Term

- PPCA, MLMUPC, MPWT

4. Issues in institutional and legal framework

Road Traffic Law only stipulates prohibited areas for parking or stopping vehicles which restricts parking on footpath:

- ✓ On the roadway, at sidewalk reserved for pedestrians, and at the space of at least 5 meters away from the zebra crossing for pedestrians, or on the zebra crossing,
- ✓ On the paths reserved for pedestrians,
- ✓ At places reserved for some specific vehicles parking or stopping,
- ✓ At places less than 20 meters away from road- railway intersections,
- ✓ At places less than 10 meters away from the front or the rear of the bus-stop sign.
- ✓ At places where parking/stopping is banned

→ Currently MPWT engaged in drafting Parking Prakas

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4. Issues in institutional and legal framework

Sub-decree on Urbanization of the Capital, Municipalities and Urban Areas (2015) instructs compulsory parking lots by building type.

Type	Floor size per parking	Applied to
Residential building	Every 100-150 m2 floor size	Detached house, house, condos and apartment
Commercial building	Every 20-50 m2	Restaurant, pub, club, supermarket, other buildings
Industrial building	Every 250-400 m2 for passenger car Every 1250-2000 m2 for truck	Factory, warehouse
Educational building	Every 100-300 m2	Primary to tertial education, sport
Health care facility	Every 100-120 m2	Hospital, sport club

*Hall, hotel, office building, gas station, transport office and other building facilities separately stipulated in sub-decree

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4. Issues in institutional and legal framework

Fragmented and overlapping responsibilities distributed among different entities requiring coordination by PPCA as a champion of parking management

Parking Management Tools	MPWT	PPCA/DPWT	Khan	Traffic Police	Present situation
1. Policy and strategy	☐	☒			
2. Law/Guideline	☒				(+) MPWT drafts parking prakas
3. Regulator		☒			(-) No operational plan and guide in place
4. Enforcement			☒	☒	
5. Operator		☒	☒		(-) Sub-let contract in limited area on ad-hoc basis
6. Standard	☒	☐			(-) No standard in place
7. Finance (including collecting fees)		☒	☐		(-) Limited parking revenue
8. HRD	☐	☒			

☒: Key actor, ☐: Stakeholder

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5. Drafting Parking Management Plan

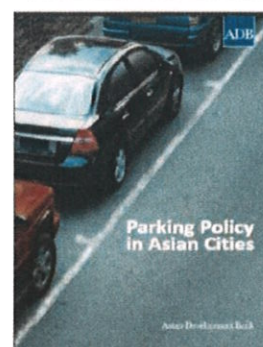
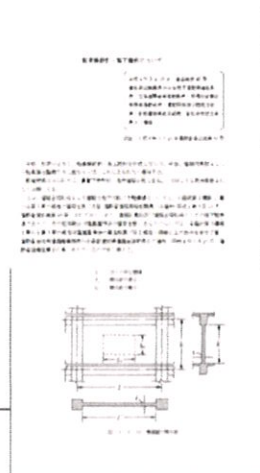
Step 1: Designation of Parking Improvement Zones

Step 2: Baseline surveys & demand/supply analysis

Step 3: Development of goals and parking strategy

Step 4: Feasibility analysis

- Parking development plan and cost estimate
- Institutional responsibility and parking management entity
- Contract model and specification
- Level of parking charges/levy
- Economic analysis and financial model



Step 1 Designation of Parking Improvement Zones

Sample Criteria to define Parking Improvement Zone

Criteria	Indicator	Requirement as Parking Management Area*
Traffic volume	Volume capacity ratio Peak hour volume	V/C ratio>1 700-800 vehicles/peak hour
Level of service	Travel speed	20 km/hour during peak hour
Parking	Parking volume/capacity	10-20 vehicles/ha during peak hour
Land use and building	Floor size/area	Total floor size/area size>100%
Traffic issues related to parking	Traffic congestion Air pollution Accident rate Illegal parking Non-compliance with parking regulation	Unacceptable level

Source: Parking Management Guide in Tokyo, Japan

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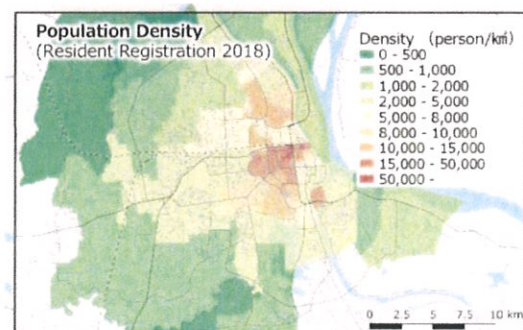
Step 1 Designation of Parking Improvement Zones

2023 JICA Survey provides socio-economic and traffic features which helps to define Parking Improvement Zones:

- CBD concentrates 23% of total population in Phnom Penh
- CBD attracts 42% of trips generated from Phnom Penh
- Trunk roads across CBA over-saturated and service level of these roads go down below 10 km/hour

→ **CBD (Chamkar Mom, Doun Penh, Prampir Meakkakra, Toul Kouk, Boeng Keng Kang)** suffices criteria for Parking Improvement Zone

Population Density



Source: 2023 JICA Survey

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Step 2 Baseline surveys & demand/supply analysis

Sample Baseline Parking Surveys

Type	Method	Survey Items
Parking Facility Survey	On-site survey Questionnaire survey	Parking type, No. of lots, lots by contract type (hourly, daily, monthly), parking charge
Parking Condition Survey	Number plate survey Interview survey	In & out time, parking duration, occupancy rate, turnover rate
Opinion Survey	Interview survey	Trip purpose, trip OD, type of car, no. of passenger, reason to park car, user opinion including willingness-to-pay
Traffic Survey	Count survey	No. of vehicle by hour/type/direction, capacity ratio

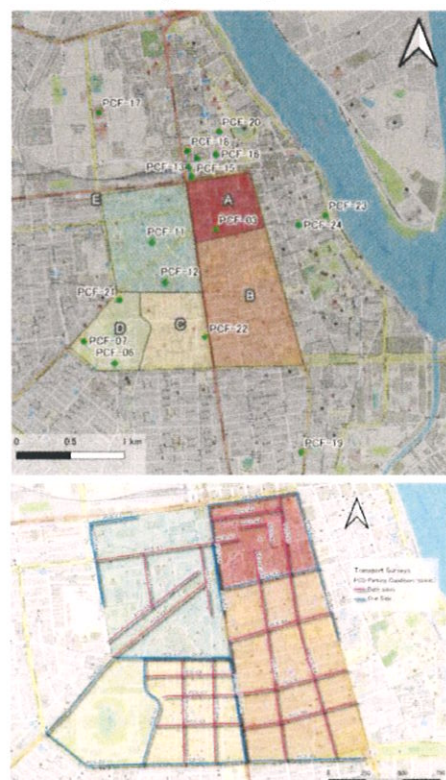
Source: Parking Management Guide in Tokyo, Japan

Step 2 Baseline surveys & demand/supply analysis

2023 JICA Survey characterizes parking facilities in designated CBD:

- **Only 100 legally designated on-street parking space** where PPCA assigns parking service providers, mainly at/around market places
- On-street parking charges only **one-time charge of 2,000 Riel/use**
- **4,800 off-street parking space available** mainly operated by private and operates 24 hours
- These off-street parking **charges 1,000-2,000 Riel/hour** (one-time charge of around 1,000 Riel for motorbike)

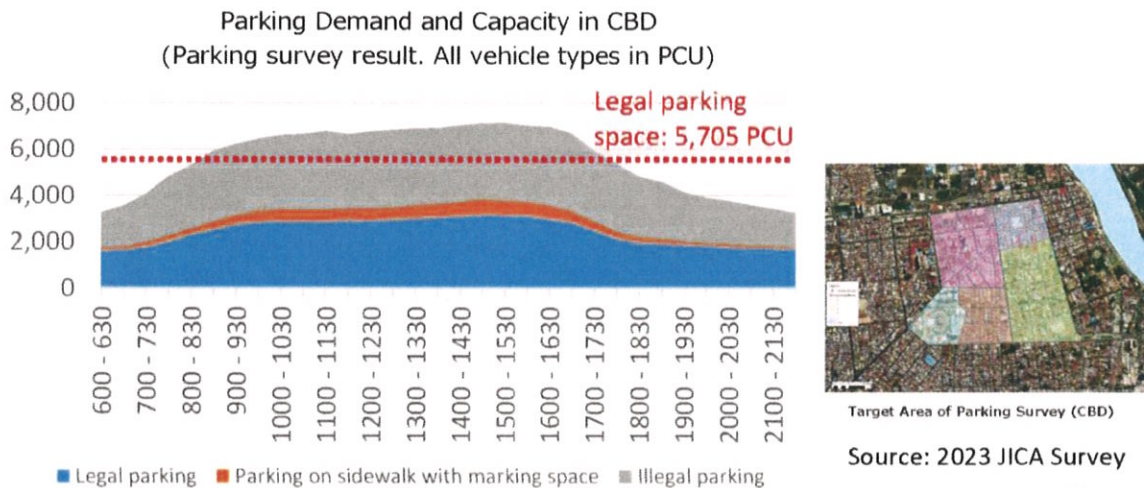
Parking Survey Area



Source: 2023 JICA Survey 15

Step 2 Baseline surveys & demand/supply analysis

2023 JICA Survey found parking demand in designated CBD **constantly over-saturates between 8 AM and 5 PM** and **excess parking demand left at illegal parking** and hinders safety and results in congestion.



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Step 3 Development of goals and parking strategy

2022 ADB TA proposed 5 goals/objectives of parking strategy in Phnom Penh

Main Goals and Objectives	Detail
Improve Urban Environment and Better Manage Traffic	To improve the urban environment and vitality of the city, particularly air quality, noise, road safety, and livability, by reducing travel demand and managing parking and traffic in a more orderly way. Respecting all road users with safe, unobstructed space for walking. Create attractive and safe streets, improving the attractiveness of the city center to locals (including women and children), as well as visitors; Increasing the vacancy of on-street parking, improving convenience, safety, and equitable sharing of space.
Enhance User Experience through better parking management	To respect residents' parking needs while balancing the availability of parking for general use and serving commercial interests (shops/restaurants and service centers) for economic vitality.
Manage Travel Demand and Improve Management and Efficiency of Parking	To manage (reduce) demand for parking by providing alternative transport options such as better public transport. Properly enforce parking rules Employing modern technologies for parking management. To optimize on-street and off-street parking more efficiently through management measures such as parking charges, time limits, and public information;

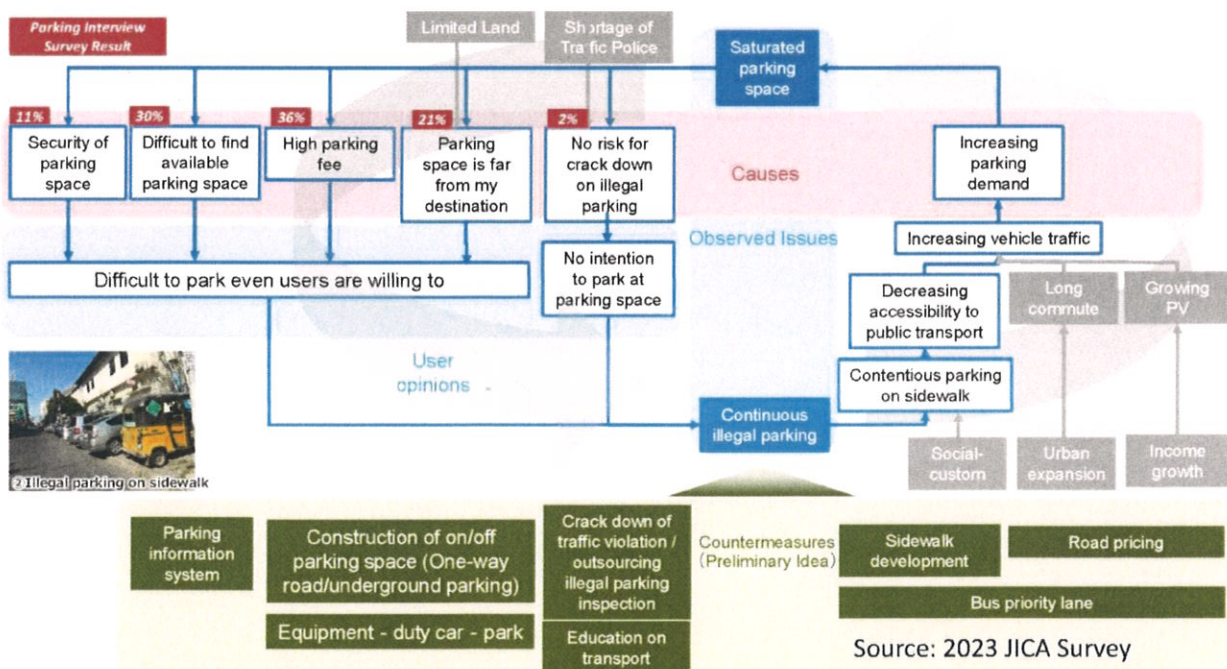
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Main Goals and Objectives	Detail
Create Revenue Opportunity and Ensure Financial Sustainability	Applying a cost for parking both on-street and off-street acts as a price mechanism to control demand and generate revenues to support management costs and potentially fund more comprehensive transport and urban improvements. Also, On-street parking charges act to manage and optimize the balance between on-street and off-street parking. For off-street parking, charges need to reflect the economic cost of using city space and should not require public subsidy.
Collect Parking Data	The parking data collection is essential for planning to improve efficiency and optimization (including pricing and demand management).

Source: ADB (2022) TA-9503 CAM: Supporting Sustainable Integrated Urban Public Transport Development

Step 3 Development of goals and parking strategy

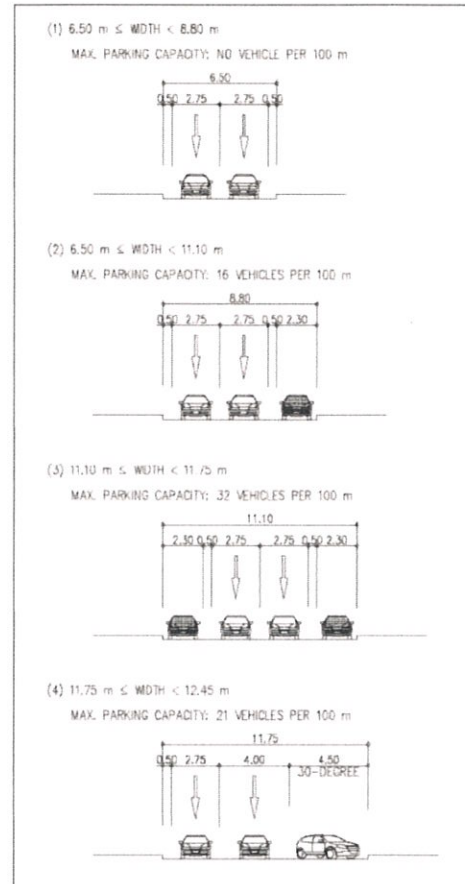
2023 JICA Survey also proposed countermeasures to address parking issues in Phnom Penh.



Step 4 Feasibility analysis

(1) Parking development plan

- Define arterial/ secondary/tertiary roads
- Arterial road in principle prohibits on-street parking
- On-street parking designed basing on design standards considering available carriageway width
- Minimal infra including (i) road marking, (ii) road signage, (iii) bollard, etc.
- Set-back parking should secure minimal walkway space



Step 4 Feasibility analysis

(1) Parking development plan

- Following sample-based site investigation, each parking measure estimated by street KM.

S/N	Parking type	Road Class	Total length (km)	Percentage applied	Actual street length (km)
1	On-street parking street	Secondary road	100	20%	20
		Tertiary road	150	20%	30
		Arterial road	50	30%	15
2	Set-back parking street	Secondary road	100	30%	30
		Tertiary road	150	30%	45
		Arterial road	50	70%	35
3	No-parking street	Secondary road	100	50%	50
		Tertiary road	150	50%	75
Total					300

Step 4 Feasibility analysis

(2) Private vs public operation and contract model

Option 1: Concession Model

- The city gives concessionaire the business opportunity for full management of the system in return for set fee payments

Option 2: Parking Services Agreement

- The city lets a contract for the private sector to manage parking services in return for set payment and performance bonuses.
- Parking Revenue collected is directly credited to the bank account of the city (via electronic means) – total gross revenue returns to the city.
- The city makes payment to the parking contractors for managing the fee collection & managing parking space

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Step 4 Feasibility analysis

(3) Level of parking charge/levy

1. General approach:
 - On-street charges higher than off-street
 - Charges higher in areas of high demand (congested areas)
 - Charges sufficient for profitable parking management
 - Time limits – short-stay encouraged over long-stay
 - Reserved parking – e.g. Residents' Zones, Disabled parking, taxi parking
 - Start minimum amount of Parking levy for Set-back parking
2. Parking charge/levy:
 - Acceptable level of charges?
 - Regular increases
 - Exemptions? Residents?

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(4) Preliminary cost estimate

Parking development in CBD requires around **9.3 M USD**

S/N	Item	Specification	Target road (km)	QTY	Unit	UP (USD)	Sub-total (USD)
1. On-street Parking (applied only for Secondary/Thirtiary road)							
1-1	On-street parking marking	White color (Thermoplastic), 5.0m*2.5m*0.2m, include 'P' marking	50	20,000	nos	39	780,000
1-2	On-street parking paint	Black/white paint on curbstone	50	100,000	m	1	100,000
1-3	Traffic sign	Every 100m	50	1,000	nos	200	200,000
2. Set-back Parking							
2-1	Walkway marking	Blue color (Thermoplastic), 1.0m width, include 'Walk' pictogram	15	30,000	m	110	3,300,000
2-2	Set-back parking marking	White color (Thermoplastic), 5.0m*2.5m*2*0.2m, include 'P' marking	15	6,000	nos	39	234,000
2-3	Set-back parking paint	Black/white paint on curbstone	90	180,000	m	1	180,000
2-4	Traffic sign	Every 100m	90	1,800	nos	200	360,000
3. No-parking							
3-1	No-parking paint	Red/white paint on curbstone	160	320,000	m	1	320,000
3-2	Bollard installation	Every 2m, 30cm(D)*50cm(H)	5	5,000	nos	80	400,000
3-3	Traffic sign	Every 300m	160	1,067	nos	200	213,333
3. Ancillary Infrastructure							
3-1	Sidewalk improvement		30	60,000	m ²	30	1,800,000
3-2	Greenery	Street tree/Flower pot	30	30,000	m	10	300,000
Total construction cost (A)							8,187,333
Contingency (10% of A)							818,733
Admin cost (3% of A)							245,620
Total project cost							9,251,687

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(5) Financial analysis

Parking operation requires **4.0 M USD annually**. Parking revenue generates **4.5 M USD to 9.0 M USD annually** under different occupancy/coverage scenario.

	1 Renumeration	QTY	Unit	UP (USD)	Sub-total (USD)
1-1	Management	5	nos	1,500/month	90,000
1-2	Admin	20	nos	800/month	192,000
1-3	Parking operator	500	nos	500/month	3,000,000
1-4	Cleaner	100	nos	250/month	300,000
	2 Direct Cost	QTY	Unit	UP (USD)	Sub-total (USD)
2-1	Office rental	12	month	2,000/month	24,000
2-2	Car rental	12	month	1,500/month	18,000
2-3	Telecommunication	12	month	2,625/month	31,500
2-4	Mobile app dev	1	LS	100,000	20,000
2-5	Mobile app maintenance	12	month	1,000/month	12,000
2-6	Admin	12	month	1,500/month	18,000
	3 Overhead (10%)				370,550
Total annual operation cost					4,076,050

S/N	Item	UP	QTY	Sub-total (USD)	Note
1	On-street parking charge	2,000 Riel/hour	20,000 parking	4,171,429	20% occupancy rate
2	Set-back parking levy	10,000 Riel/month	36,000 parking	324,000	30% coverage rate
Total annual parking revenue				4,495,429	

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(5) Financial analysis

Proposed parking development plan evaluated financially feasible with NPV of 8.4 M USD and IRR of 17% per annum under 40% occupancy rate for on-street parking and 60% coverage ratio for set-back parking in 10 years

Case study: 40% occupancy rate for on-street and 60% coverage for set-back parking in 10 year
 Inflation: 1.5% p.a.

Year	Expense	Revenue	Balance
0	13,327,737		-13,327,737
1	4,137,191	4,495,429	358,238
2	4,199,249	5,394,514	1,195,266
3	4,262,237	5,844,057	1,581,820
4	4,326,171	6,293,600	1,967,429
5	4,391,063	6,743,143	2,352,079
6	4,456,929	7,192,686	2,735,756
7	4,523,783	7,642,229	3,118,445
8	4,591,640	8,091,771	3,500,131
9	4,660,515	8,541,314	3,880,800
10	4,730,422	8,990,857	4,260,435
11	4,801,379	8,990,857	4,189,478
12	4,873,399	8,990,857	4,117,458
13	4,946,500	8,990,857	4,044,357
14	5,020,698	8,990,857	3,970,159
15	5,096,008	8,990,857	3,894,849
16	5,172,449	8,990,857	3,818,409
17	5,250,035	8,990,857	3,740,822
18	5,328,786	8,990,857	3,662,071
19	5,408,718	8,990,857	3,582,140
20	5,489,848	8,990,857	3,501,009
		NPV	8,463,440
		IRR	17%

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(6) Summary of benefits derived from parking management

Benefit	Details
Maximize efficient use of public/private asset	- Improved local recognition of on-street parking and set-back parking space as public assets - Clearly define on-street and set-back parking by Prakas or Notice and improved management for these parking by local government authority - Increased investment opportunities for off-street parking business by private sector
Reduce traffic congestion	- Improved road capacity thru zero parking and managed on-street and set-back parking space - Reduction of traffic demand thru development of fringe parking and public transport system - Optimization of traffic demand thru parking control and pricing measures in CBD area
Improved service quality and security	- Improved accessibility and mobility of the pedestrian walkway - Reduced risk in traffic accident caused by pedestrian/vehicle collision
Facilitate travel cost saving	- Reduction of travel time/cost thru reduced and optimized traffic demand
Revenue generation	- Increased amount of development fund/special purpose funding for urban transport - Use parking revenue as cross-subsidy for urban transport improvement - Improved financial sustainability of local government and which enables eligible to receive a loan endorsed by MEF

(7) Institutional arrangement for parking management



	On-street parking	Off-street parking	Set-back parking
Design standard	Designated parking following street/parking design guide	Vehicle Geometric Design	Designated parking following street/parking design guide
Owner/ Developer	PPCA or Khan	Private	PPCA or Khan
Contract	Parking service agreement	Private	Levy borne by property owner
Charge level	2000-3000 Riel/hour		8000-10000 Riel/parking/month
Note		Suggest incentives thru tax reduction/ subsidy for fringe parking	Suggest to pay by ID electricity/solid management

Step 4 Feasibility analysis

(8) ICT & payment system

Wide range of payments systems available. Technology is constantly changing and improving

- Displayed pass or permit (Monthly or annual)
- Attendants: cash payment & paper tickets
- Pay-and-display meters
- Prepaid or post-paid by smartphone



6. Proposal on Pilot parking management project

MPWT currently drafts Parking Law. Propose MPWT/PPCA/Khan to design and implement area parking management plan as part of forthcoming JICA's project activities.

Activity	2023				2024				20XX				Stakeholders
	1	2	3	4	1	2	3	4	X	X	X	X	
1. Draft parking law					★1								MPWT
2. Preparation of strategic plan								★2					PPCA, Khan
3. Designation of Parking Zones								★2					PPCA, Khan
4. Develop parking infrastructure													DPWT
5. Preparation of bidding for Operator												★3	PPCA, Khan
6. Awareness campaign and PI								★5	★5	★6	★6		MPWT, PPCA, Khan, Police
7. Monitoring and evaluation													PPCA, Khan, Police

★1: Enacted by Minister, 2: Approval by Governor, 3: Sign contract with operator, 4: Bridging MPWT/PPCA, 5: General awareness campaign, 6: Area-specific public involvement

A. International practice for parking management

(1) Typical parking management policies & strategies

Policy	Strategies	Improved traffic flow
Increase parking facility efficiency	i. On-street/Off-street parking dev	+++
	ii. Fringe parking dev	++ (with PT)
	iii. Design standard	+
	iv. Building permit/enforcement	+++
	v. Parking tax reform	+
Reduce parking demand	i. Parking control	+++
	ii. Ride-sharing	+
	iii. Parking pricing	+++
	iv. Financial incentive (e.g., Corporate tax reform)	+
Supporting strategies	i. Improved user information	+
	ii. Strict parking enforcement	+++
	iii. Introduce ICT and payment	+

A. International practice for parking management



No parking



On-street parking bay and time control



Fluctuated parking charge ³²

A. International practice for parking management



Enforcement against illegal parking



Odd and Even Day parking permit



Park and Ride

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