MINISTRY OF TRANSPORT

THE ROYAL THAI GOVERNMENT

BANGKOK MASS TRANSIT DEVELOPMENT PLAN

INVITATION TO SUBMIT PROPOSALS

26 January 2006

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EXECUTIVE SUMMARY

With a population of around 11 million persons, Bangkok ranks as one of the top twenty megacities in the world and it is the Government's intent that the city maintains a central role in Thailand while developing as the regional hub of South East Asia. The success of this goal will depend on the ability of Bangkok to function well as a modern city.

Bangkok has reached the point where investment in additional roads exceeds the economic benefits obtained and urgently requires a mass rapid transit network. Rail mass rapid transit is the most suitable and efficient mode of moving large numbers of people with minimal impact on the environment. There are three existing mass transit lines with a length of 42km, and studies have suggested that to meet the Government's objectives the network will need extending to a total of around four hundred kilometres. Preliminary routes have been identified and some engineering design already carried out.

It is essential that the network benefits Thailand and its people by providing the most modern but proven technology to ensure quality of service and safe operation. The System must attract the maximum number of passengers by offering speed, reliability and convenience at affordable fares. The economic benefits of the System take precedence over any financial benefits. The System must offer "Value for Money".

The Government, through the Ministry of Transport, intends to seek proposals from investors interested in participating in the development of the mass transit network and urban rail lines. Participants will not be restricted to the construction of the lines as currently designed, but may offer alternative options including different alignments and appropriate railway types (such as medium or light rail, or monorail etc.).

The Government has set the following objectives for the implementation of its vision for a comprehensive mass transit network:

- To support the economic development of the city
- To achieve delivery in the most timely and cost effective manner
- To achieve the highest standards of service quality and system safety in operation

Proposals are required to be submitted at the end of April 2006 and should include:

- Qualifications of Bidder
- Mass Transit Network Development Analysis
- Technical Descriptions
- Financial and Economic Benefits to Thailand
- Implementation Plan and Programme
- Financial and Commercial Proposal

A government appointed panel will finalise selection of successful bidders with the intent of awarding contracts by the end of July 2006.

1 BACKGROUND INFORMATION

With a population of around 11 million persons, Bangkok ranks as one of the top twenty megacities in the world. Around 15% of Thailand's population lives in the city and it accounts for more than half of the country's economic activity. All government agencies and many important business enterprises are located in the metropolis and it is the government's intent that the city maintains this central role and also develops as the regional hub of South East Asia. The success of this goal will depend on the ability of Bangkok to function well as a modern city.

One of the main potential obstacles in achieving this target is the problem of personal transportation for Bangkok residents. Notwithstanding the substantial investment that has been made on the construction of expressways, roads and overpasses in the last two to three decades, the traffic problems persist and the traffic management remains inefficient.

The number of vehicles on the city roads and the resulting traffic congestion lead to a loss in the quality of life by time lost in traveling, pollution of the atmosphere and general stress from traffic noise and delays. These tend to degrade the environment and the inefficiency is a disincentive to foreign investment. There is also an economic loss from wasted vehicle passenger time, increased vehicle operating and crew costs.

Bangkok has reached the point where investment in additional roads exceeds the economic benefits obtained and urgently requires a mass rapid transit network befitting a capital city with eleven million inhabitants. Rail mass rapid transit is the most suitable and efficient mode of moving large numbers of people with minimal impact on the environment.

Current Mass Transit System

There are three existing mass transit routes in Bangkok. The first two, on the Green Line opened in 1999, are elevated lines running from Mo Chit to On Nut (16.4km) and from National Stadium to Saphan Taksin (6.5km), with an interchange at Siam station. The third, the Blue Line opened in 2004, is an underground system running from Bang Sue to Hua Lamphong (19.7km). These 3 lines currently serve a total of more than 500,000 passengers a day. The Green and Blue lines connect effectively at three points for passenger transfer, but otherwise operate independently of each other.

Last year, the State Railway of Thailand launched the new Airport Rail Link Project, connecting the new Suvarnabhumi International Airport (SIA) with the Don Mung Airport (DMA). The project is divided into two phases, (1) Airport Rail Link: ARL and (2) Airport Rail Link Extension: ARLX. The ARL project is now under construction and it is planned to be finished by the year 2007. This project has a length of 28.5 kilometers from the SIA to Makkasan Area.

In addition, between 1997 and 2005 designs have been carried out for the Orange, Blue and Purple Lines for the MRTA, and in 2005, the Office of Transport and Traffic Policy and Planning (OTP) finished parts of the design of the Red Line, including (1.) North Line: Bang Sue to Rangsit and (2) West Line: Bang Sue to Taling Chan. Rest of the project, (3) Missing Link: Hua Lamphong to Bang Sue and Bang Sue to Makkasan and (4) Maklong Line which will be completed by the first quarter of this year.

2 CONCEPT AND DEVELOPMENT PLAN

Currently, traffic is a significant problem in Bangkok. The new city plan aims to solve this by developing a transportation network to connect all major areas in Bangkok. The following areas will be developed to be urban transportation centres in the future: (1) Taksin community center (2) Paholyothin community centre (3) Makkasan community center. Makkasan will be the community center connected to Suvarnabhumi airport in the future. The study of Urban Rail Transportation Master Plan (URMAP) created by the Office of Transport and Traffic Policy and Planning (OTP) was adopted as the basis of making the draft of transportation network of the whole city plan to support the development for the next twenty years. In 2005 a study of "The Intermodal Services Integration for the Mobility, Accessibility, Sustainability and Livelihood for Bangkok Metropolitan Region and Surrounding Area" (IMAC) was carried out, which must also be taken into account.

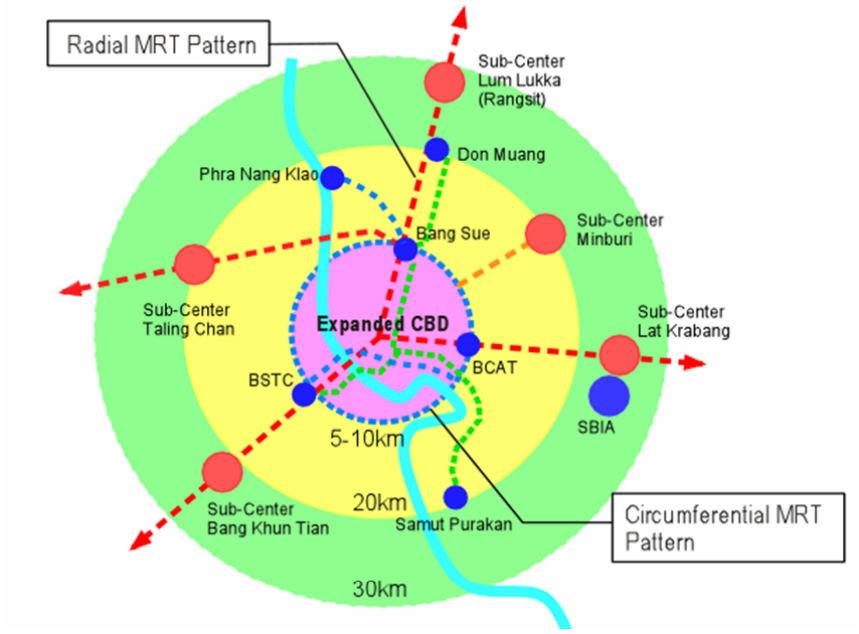


Figure 2-1 City Development Plan for Solving the Traffic Problem

After considering the principle of city planning, the principle of traffic and transportation engineering, together with URMAP, the basic service area of the network can be determined to include areas that have a population density of more than 6,250 people per square kilometer. This will cover most of the areas within a 20-kilometre radius from the centre point of Bangkok and the areas along the major roads that connect to the city centre.

The previous urban rail transportation master plan consisted of two parts. The first plan was MTMP, which was carried out in 1994. This was followed by the conceptual design for the implementation plan (CMIP) in year 1996 and the feeder transit in year 1998

The routes designed according to URMAP, when they are completed, will consist of a system which is 375 kilometers long as shown in **Figure 2-2**.

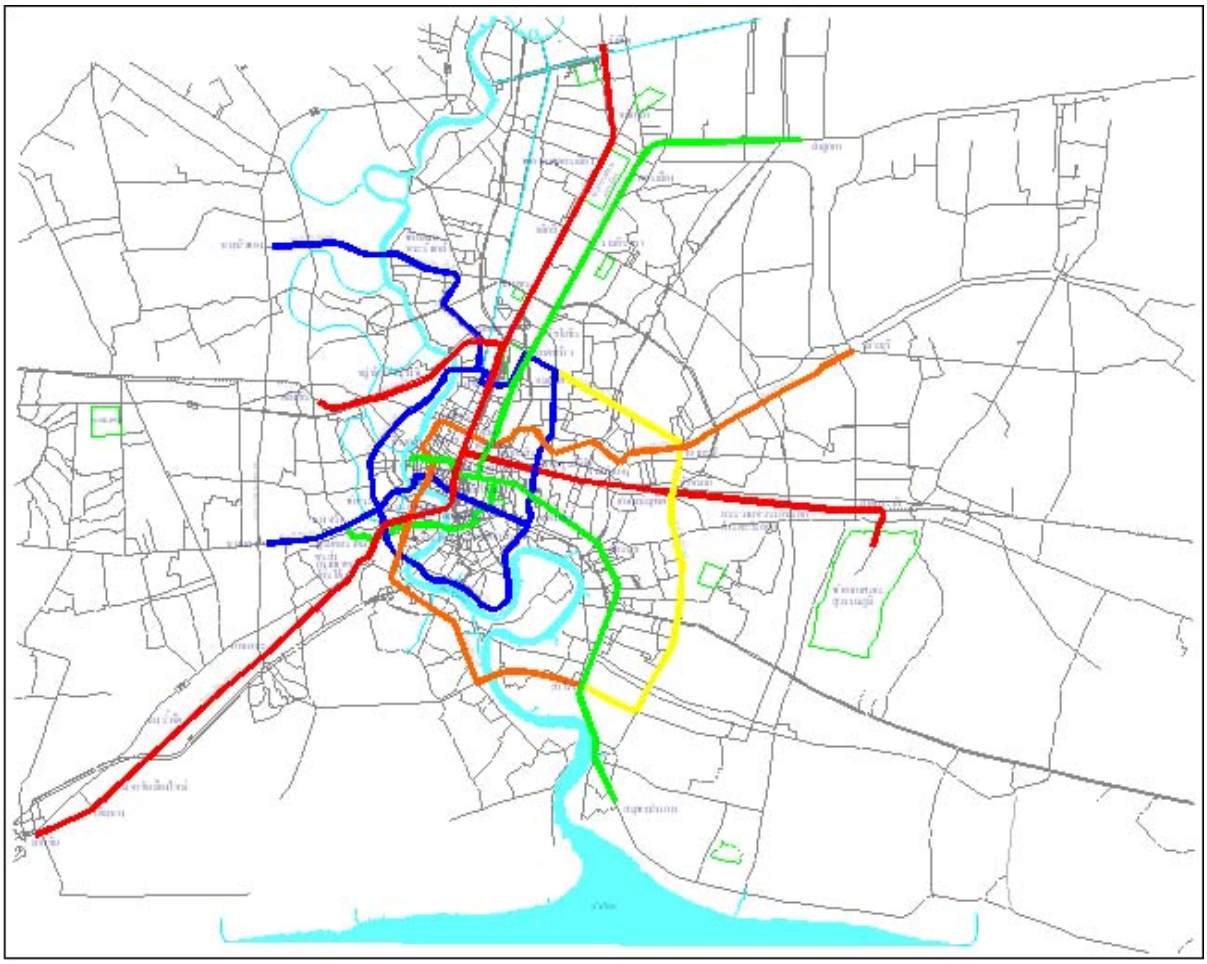


Figure 2-2 URMAP Plan

The urban rail transportation network consists of mass rapid transit and commuter train systems. For mass rapid transit, there will be two operating agencies; the Mass Rapid Transit Authority (MRTA) will be responsible for the Blue, Orange and Purple Lines. The Bangkok Metropolitan Administration (BMA) will be responsible for the Green Line. The total length of the mass rapid transit network is 271 kilometers. In addition, State Railway of Thailand (SRT) will be responsible for the commuter train, which has two routes with a total length of 115 kilometers

Concept of Development Plan

The main concept of Bangkok Mass Transit Development Plan is that the services of the Rail Mass Transit System must include area **Coverage, Accessibility**, and **Efficiency** in order to be the new alternative transportation mode for people in the near future.

Furthermore, planning covers the consideration of selecting the type of railway, which must be appropriate for each route as well as with the connection between different types. For example, in a long-distance route, if the number of passengers is low in some sections, leading to a loss in operation, other types of public transport such as bus rapid transit, express buses, or ordinary buses may be introduced to support the MRT by acting as a feeder.

Traffic and Transportation Engineering Concept

In the initial stage of planning, the new networks were designed to be in line with and to support the existing networks. The network of radial routes was designed first. This consists of the radial routes of urban mass rapid transit, responsible for serving commuters journeying to and from the urban areas and the commuter trains, responsible for linking distant commuters in the outskirt areas to urban areas. After adequate radial networks are built to cover some inner areas, the extension of network to cover routes as a circular line will be considered in order to collect and distribute the passengers within these areas. The extension of networks also leads to the connection of the transit between radial and circular lines, which could reduce the number of transfers in the stations around the city center. If the routes with circle pattern are not provided in the future, there will be too large a number of passengers at the centre of the city for the transit system. This will lead to the unnecessary increase of travel distances and the problem of over crowding around the transfer station areas.

The above studies and designs, and other information relevant to the development and planning of a mass transit rail network for Bangkok will be made available to investors prior to submission of proposals in a specially set up Information Centre within the Office of Transport and Traffic Policy and Planning (OTP), Ministry of Transport, 35 Petchaburi Road, Rajthevi, Bangkok 10400. The information will also be made available over the internet on the OTP dedicated website at www.bangkokmasstransit.com or www.otp.go.th

3 REQUIREMENTS AND CONDITIONS OF THAILAND

Procurement

The Government, through the Ministry of Transport, intends to seek proposals for a suitable System from consortia interested in participating in the development of the mass transit network and urban rail lines. The definition of "System" throughout this document is part or all of an extension to the existing Bangkok mass transit network required to meet the stated objectives of the Government. Participants will not be restricted to the construction of the lines as currently designed, but may offer alternative options including appropriate rail types (such as medium or light rail or monorail etc.).

The Government will encourage and ensure fair competition. Potential investors will be given equal opportunities during the procurement and implementation stage, irrespective of country of origin. Internationally recognised conditions of contract will be adopted in principle to maintain a level playing field approach at all times. While ensuring fair competition, the Government will encourage adoption of the best proven technologies appropriate to a mass transit rail network.

The working language for contractual agreements will be English, enforced in accordance with the Thai or International Law as agreed between the Government and the investor.

Participants are encouraged to promote technology transfer and Thai participation in construction and manufacture. Participants will be required to indicate the completion programme for the lines selected.

In addition to the financial and economic criteria, proposals will be assessed for:

- Best value for money over the expected design life
- Lifetime maintenance strategy
- Operational efficiency
- Aesthetics
- Environmental impact
- Relevant experience
- Technical / implementation approach & methodology
- Value and benefit to Thailand
- Key milestones for development and project implementation

Network Extension

The Government has identified a tentative complete network of ten new lines as shown in **Figure 3-1** below.

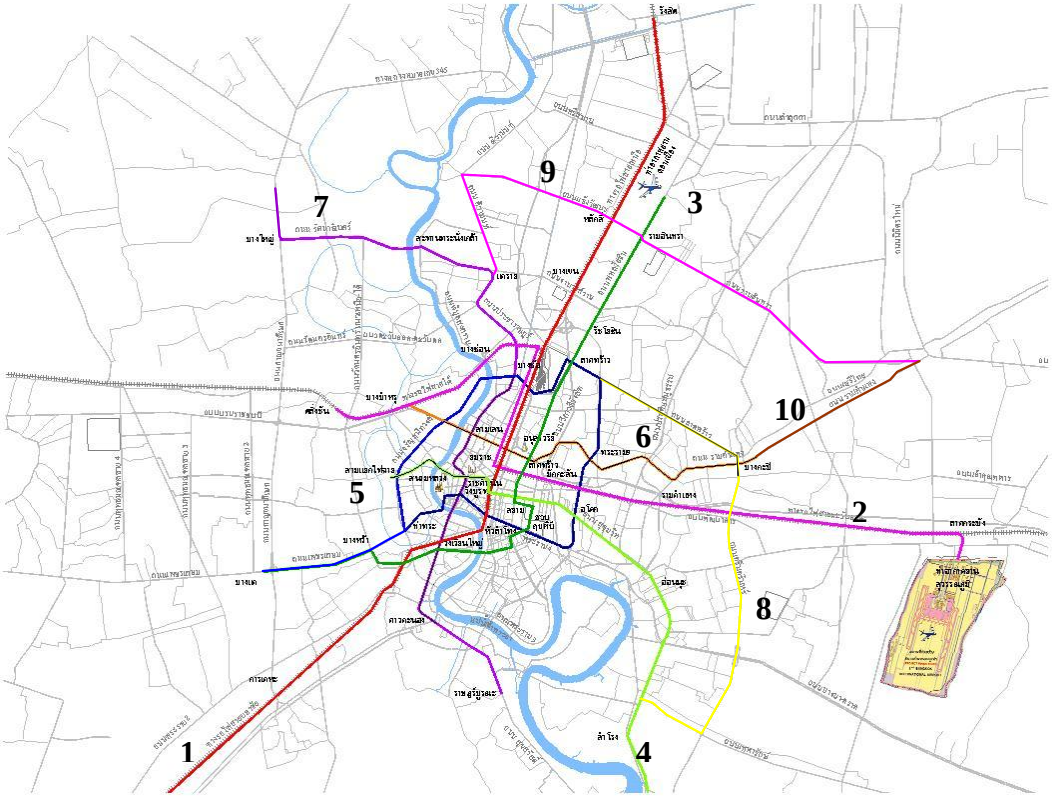


Figure 3-1 Tentative Complete Mass Transit Network

The routes to be served are:

1. Dark Red Line from Rangsit to Maha Chai
2. Light Red Line from Taling Chan to Suvarnabhumi Airport
3. Green Line Extensions 1 from Saphan Taksin to Bang Wa and Mo Chit to Saphan Mai.
4. Green Line Extensions 2 from to National Stadium to Pran Nok and On Nut to Samut Prakan
5. Blue Line Extension from Bang Sue - Tha Phra - Hua Lam Phong and Tha Phra to Bang Khae
6. Orange Line from Bang Kapi to Bang Bumru
7. Purple Line from Bang Yai to Rat Burana
8. Yellow Line from Lat Phrao to Samrong
9. Pink Line from Min Buri to Pak Kret to Khae Rai
10. Brown Line from Bang Kapi to Min Buri

A detailed description of each potential new line is given in the appendices.

It is important to note that the lines identified are indicative of the network requirements to serve the Bangkok Metropolitan Area. However, investors are invited to propose alternative Systems which achieve the objectives set out by the Government.

It is essential that the System benefits Thailand and its people by providing the most modern but proven technology to ensure quality of service and safe operation. The System must attract the maximum number of passengers by offering speed, reliability and convenience at affordable fares. The System must offer “Value for Money”.

4 SCOPE OF IMPLEMENTATION

Government Objectives

A rail based transit network is the most suitable and environmentally sustainable means of moving large numbers of people fast, safely and in comfort. The expansion of the mass transit network will provide the following benefits:

- Reduced dependence on use of oil and exposure to oil price
- Time saving and improved journey experience for passengers
- Improved economic productivity for the Bangkok Metropolitan Area

The Government has set the following objectives for the implementation of its vision for a comprehensive mass transit network:

- To support the economic development of the city by securing a substantial and sustained increase in patronage of the mass transit network
- To achieve delivery of the planned expansion of the mass transit network in the most timely and cost effective manner
- To achieve the highest standards of service quality and system safety in operation

Target of the Development

The route, capacity and operating service proposed for each new line shall be linked to these overall objectives and may be aimed at reducing journey times for commuters traveling to and from their place of work from areas outside the inner city area and/or improving mobility for businessmen, tourists and inner city residents within the city and/or acting as an incentive for transit oriented development linked to urban planning policy and the creation of satellite cities around central Bangkok.

The proposed network will affect the whole of Bangkok including the outlying communities and adjacent municipalities. The objective is to fast track implementation of the complete network up to the practical limit, based on the capacity of the city to absorb the disruption that construction will cause.

Speed of implementation shall not be permitted to compromise the quality and durability of the Systems to be implemented and achievement of the stated objective shall only be possible with modern technology built to international standards that can be maintained at a high level of safety and availability over a long service life.

In particular the proposals shall need to demonstrate compliance with overall technical, programme and economic benefit targets, which are outlined in the following sections.

Other considerations that relate to technical elements that will need to be addressed in bidder's proposals are addressed below.

Application of Modern Technology

Traditionally, railway technology is specified to have been proven in service, particularly with respect to safety, and technology has advanced quite slowly. There is now a growing willingness to accept more modern technology where there are clear advantages to the investor and/or the operator.

For the implementation of the mass rapid transit network for Bangkok, the emphasis will be on safety and availability but cost is also an important factor.

It is anticipated that a mix of technologies may be appropriate to the different transport corridors covered by the mass transit network and that high capacity heavy rail may be supplemented by light rail, monorail and/or BRT.

Value for Money

To ensure that the investment is appropriate and compatible the technical bids will need to demonstrate value for money in terms of:

- Ridership
- Travel time
- General quality
- Viability to meet Government objectives

The proposed mass transit network will have a significant effect on urban development both in terms of Government planning to provide incentives for housing and commercial development and in terms of private development initiatives.

Proposals that will promote a symbiotic relationship between transport and urban development will receive favorable evaluation.

Flexibility to Upgrade with Future Technology

High availability over the longer term can normally be assured by the use of more modern technology but not by attempting “cutting edge” developments. Emphasis will therefore be placed on technology that is current but has a guaranteed upgrade path to take advantage of mainstream technical improvements.

Compatibility to Integrate with Existing Systems

The completion of the mass transit network as currently proposed will not be the end to investment in transportation in and around Bangkok. The Systems to be implemented shall all be capable of further extension in length and / or expansion in passenger carrying capacity.

It is as a guiding principle that such extensions and expansions shall be possible with the minimum requirement for retrofitting and with the minimum impact on existing passenger services. A modular approach may therefore be preferred.

The objective is to achieve a mass transit network that can be used by the travelling public with maximum ease. This will require a high degree of consistency in operating strategies, fare collection and all other elements where the public interacts with the network. It is possible that the Government will issue standard guidelines covering all mass transit operations in Bangkok to address this issue.

Integration will be particularly important at interchanges between different lines of the network and proposals should ensure that passenger transfer between lines is facilitated to the maximum possible extent, even where the transfer is between railways of different types.

Integration with other modes of transport including buses, taxis, water borne vehicles and private cars shall also be provided to the maximum possible extent. Integration of bus fares and parking charges for Park & Ride locations with mass transit fares shall be facilitated to ensure that the total travel cost for any journey within Bangkok is controlled to an economically acceptable level.

Proprietary technology where the initial supplier can exert control as the only viable supplier for future extensions and expansions shall include binding undertakings that will place clear limits on the supplier with respect to future costs for such extensions and expansions.

Compatibility with Local Technical Competence and Technology Transfer

The Government is looking for developments that are sustainable locally to the maximum possible extent. Local content shall be maximised where existing manufacturing capability can meet the requirements.

Technology transfer shall be encouraged in terms of System design, manufacturing and implementation and shall be focused on activities where existing competence can be raised from present levels. Technology transfer shall be mandatory with respect to maintenance of all elements of the System proposed to ensure long term sustainability

Proposals for technology transfer that include the establishment of new manufacturing competence and human resource development in Thailand will receive particularly favourable evaluation.

Financial Proposal

The economic benefits of the System take precedence over the financial benefits. The financial proposal will be required to demonstrate the following:

- Cost to Government, including both initial cost and life cycle costs
- Financing capability to deliver the project
- Other benefits to Thailand, such as urban development, employment generation and railway related industrial development

Other Considerations

The Government of Thailand maintains the right to terminate the tender or modify details of the requirements.

All submissions will be subject to Ministry of Finance regulations and conditions that will be issued subsequently.

Upon timely receipt, all proposals become the property of the Ministry of Transport of Thailand. The Ministry of Transport reserves the right to use any part of the proposals submitted in connection with the mass transit metwork development, and other related matters.

5. REQUIRED CONTENTS OF PROPOSAL

Proposals, which are to be prepared in English, should provide a total solution, including:

1. Experience/ Expertise/ Financial Status
2. Analysis / Assessment of Existing situation and future demand
3. Technical / implementation approach & methodology & standard
4. Economic & financial return
5. Financial proposal, term & condition of payment
6. Value & benefit to Thailand & the Thai people
7. Operation model
8. Key milestones for development & project implementation
9. Critical success and failure factors / risk assessment for implementation
10. Obligation of the implementation partner

Specific requirements are outlined below

Qualification of Bidder

Bidders shall provide details of the following:

- Legal Registration applicable for the Works
- Company Financial Record (audited accounts for previous 3 years)
- Company Management Capability
- Company Resources & Workload
- Company Experience
    - In Thailand & the region
    - For construction of similar size and type
    - For the proposed technology
- History of Performance
- History of Dispute Resolution

Mass Transit Network Development Analysis

The bidder will need to demonstrate their understanding of the requirements for the proposed System, including:

- Catchment area
- Ridership, both initial and long term
- Expansion requirements

- Levels of service
- Interface with other transit lines
- Multimodal transport interface
- FIRR
- EIRR

Technical Descriptions

Technical details, drawings and specifications shall be provided to allow assessment for the particular technology proposed. Assessment shall focus on:

- Level of service provided
- General technical standards and quality
- Compatibility with existing technology
- Expandability
- Interface with other lines and multimodal transport
- Reliability, Availability, Maintainability and Safety (RAMS) / systems assurance
- Systems Integration
- Construction impacts

Financial and Economic Benefits to Thailand

Proposals shall detail financial and economic benefits to Thailand as a whole, providing details to facilitate assessment, such as:

- Economic benefit (time related factors)
- Urban Development: (housing / transit orientated development / social & community benefits)
- Property Development: (transit orientated development / social & community benefits)
- Railway manufacturing industry development
- Human resource development

Implementation Plan & Programme

Proposals shall include details that allow assessment of the bidders ability to implement the project and their associated programme, including;

- Programmes & Deliverables: including Construction, manufacture, installation, testing & commissioning and start-up programmes
- Management Process: Project Management & Coordination Plans & Staff Organisation
- Quality Management: Quality assurance and control plans
- Safety and Environmental Plans
- Construction, manufacture and installation methodologies

- Systems Integration Plan
- Systems Assurance Plan
- Start-up Plan: Testing and Commissioning, Operations & Maintenance and Training Plans
- Operating Plan

Financial & Commercial Proposal

Financial information may vary depending upon bidders commercial intentions, but shall include elements that impact the effective cost to the Thai Government, such as:

- Initial cost: (considering initial construction cost, fixed lump sum or other pricing, index pegging and payment currency)
- Life cycle costs: (considering operations, maintenance, upgrading & expansion for target capacity and replacement)
- Government contributions (such as Government land provided and tax benefits)
- Value ($ / passenger – km)

The commercial proposal will include commercial terms and financing models proposed and may include:

- Finance costs passed to Government implications (such as fixed interest rate / floating rate)
- Payment terms (progress payments / balloon payment)
- Undertaking (completion guarantee / guarantor / default provision)
- Source of funding (sovereign / development bank)

6. BIDDING PROCESS AND SCHEDULE

In order to achieve the required implementation programme, the following process will be adopted:

- Invitation to submit proposals issued on 26 Jan 06
- Proposals to be submitted by 28 Apr 06
- Government appointed panel to finalise selection of successful bidder by end Jul 06

The proposal, prepared in English, should not exceed 200 A4 size pages of single line text in a minimum 10pt size typeface, excluding support catalogues or material of a general nature. Five bound copies and one loose leaf copy (suitable for reproduction) and an electronic version on CD should be supplied.

The proposal must be submitted by 15.00 hours on 28 April 2006 in a sealed envelope marked "BANGKOK MASS TRANSIT DEVELOPMENT IMPLEMENTATION PROPOSAL" to the following address:

Chairman of the Mega-projects Management Committee
Ministry Of Transport
Rajdamnemok Avenue
Bangkok 10100
Thailand

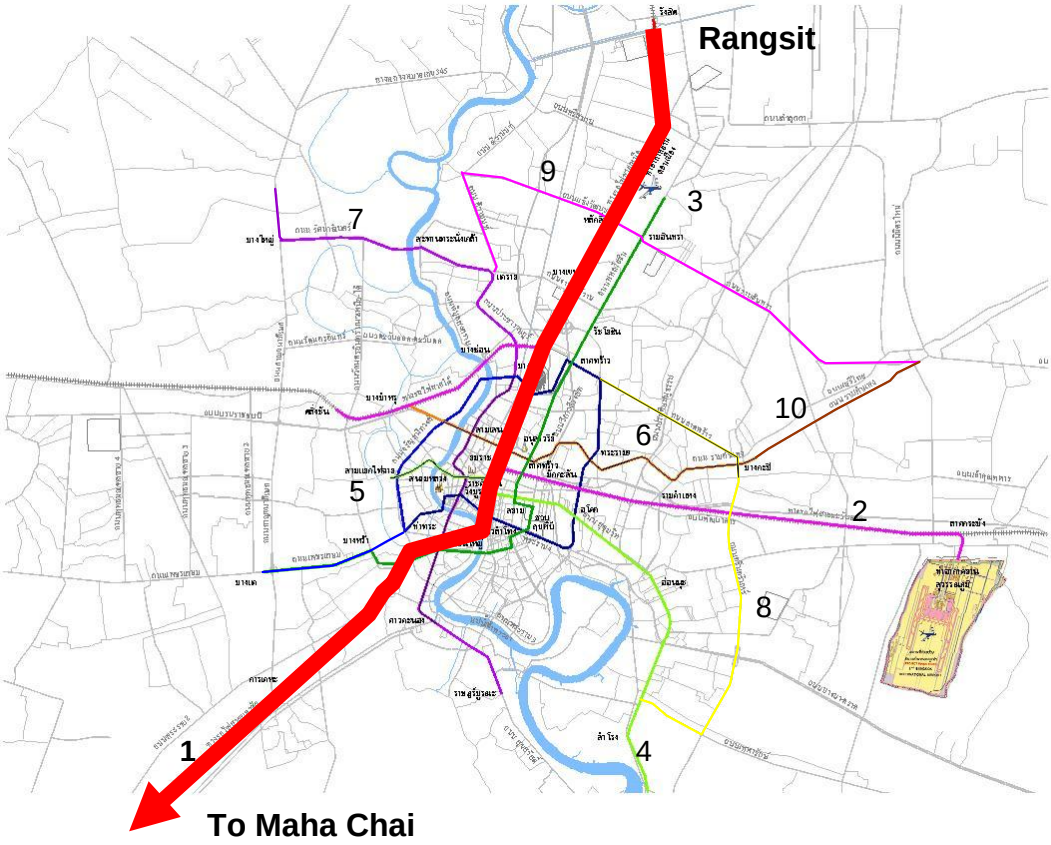
Proposals may be sent either by mail, overnight courier, or hand delivered. Whichever method is chosen, the bidder shall be responsible for the actual delivery of the proposal to the address above before the deadline.

7. INFORMATION

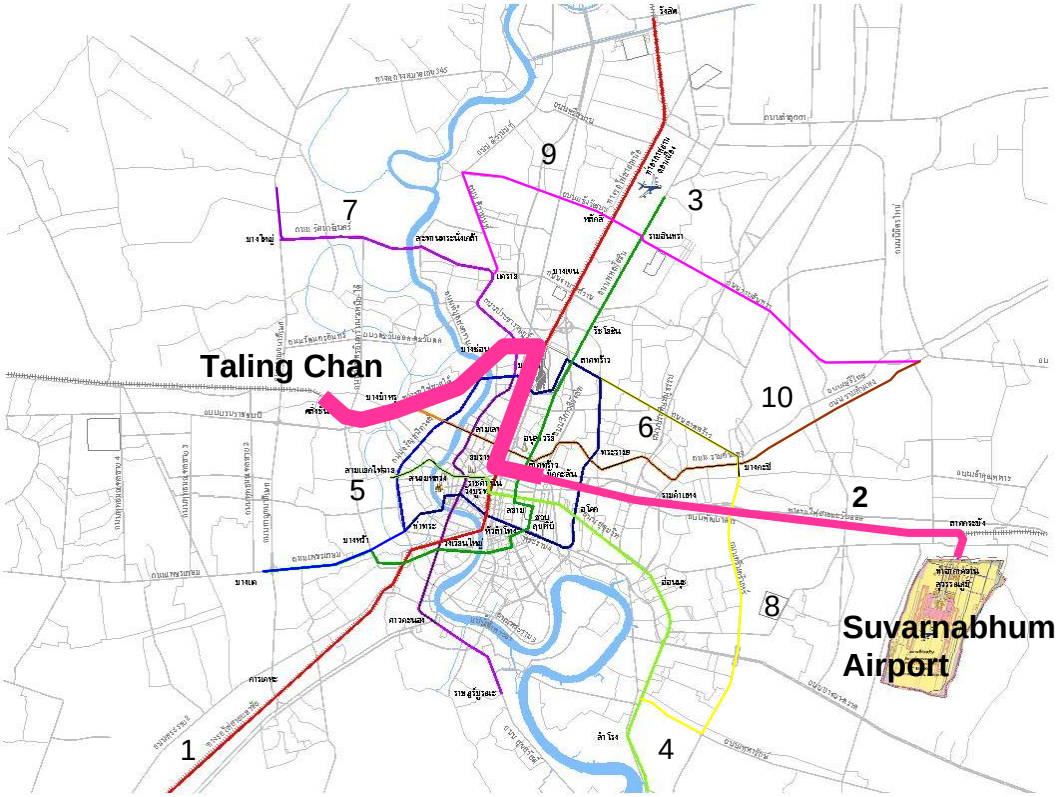
For further information please contact:

Director-General
Office of Transport and Traffic Policy and Planning
35 Petchaburi Road, Ratchathewi
Bangkok 10400
Thailand
Tel: 662-2154545
Fax: 662-2167395
www.bangkokmasstransit.com

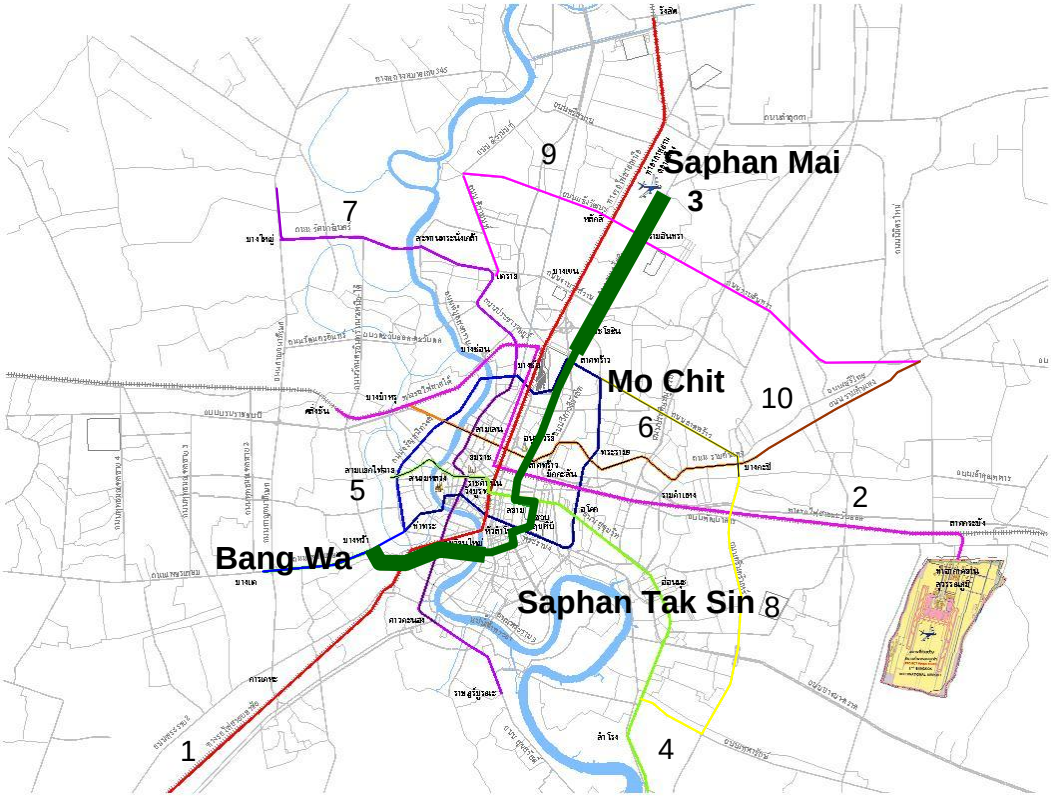
Appendices



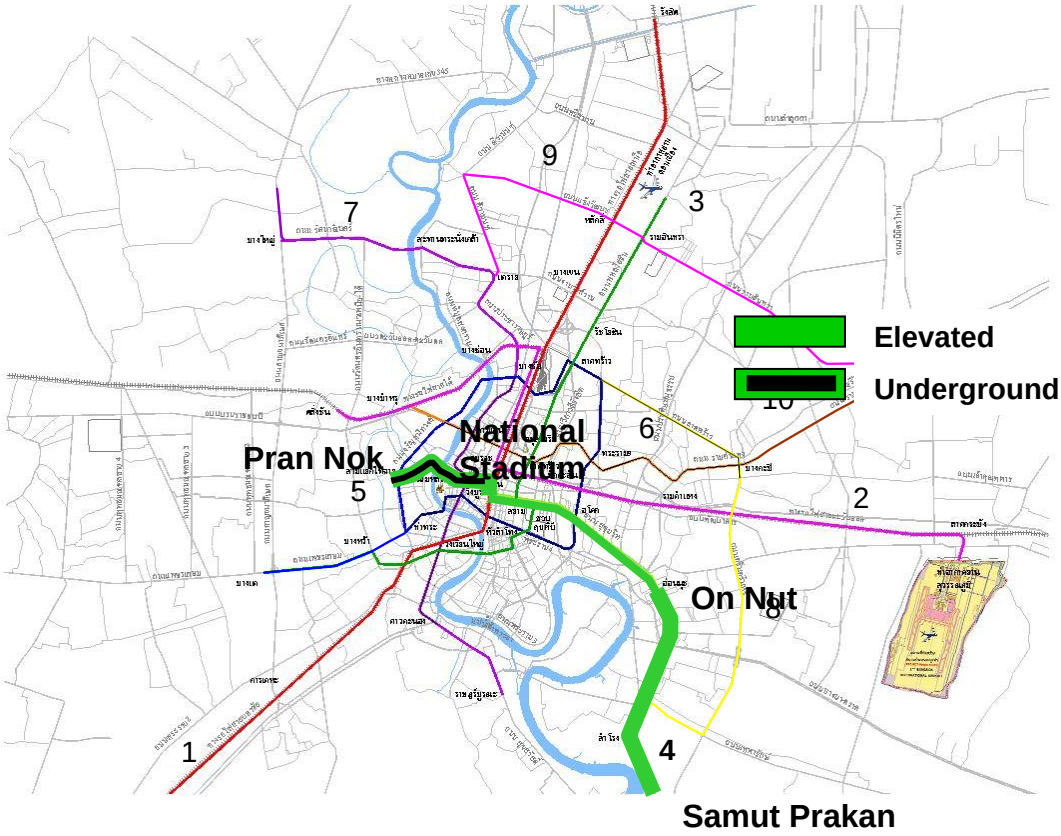
DARK RED LINE	
From	Rangsit
To	Maha Chai
Length (elevated) km	55
Length (underground) km	-
Length (at-grade) km	10
Total Length km	65
Stations (elevated)	29
Stations (underground)	-
Stations (at-grade)	2
Total number of Stations	31
MRT System	Heavy Rail
Forecast Ridership pass/day	718,000 (Year 2010)
Design status	Tender documents prepared for D/B contracts



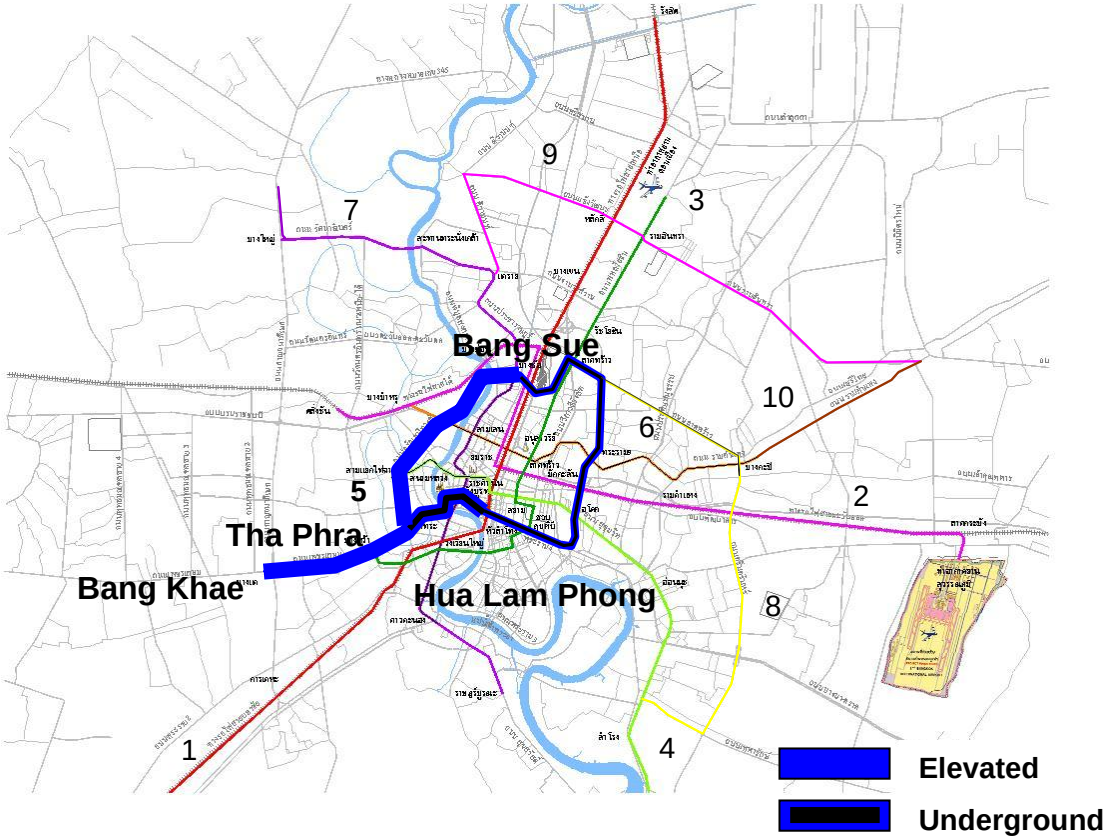
LIGHT RED LINE	
From	Taling Chan
To	Suvarnabhumi Airport
Length (elevated) km	50
Length (underground) km	-
Length (at-grade) km	-
Total Length km	50
Stations (elevated)	13
Stations (underground)	-
Stations (at-grade)	2
Total number of Stations	15
MRT System	Heavy Rail
Forecast Ridership pass/day	457,000 (Year 2010)
Design status	Tender documents prepared for D/B contracts



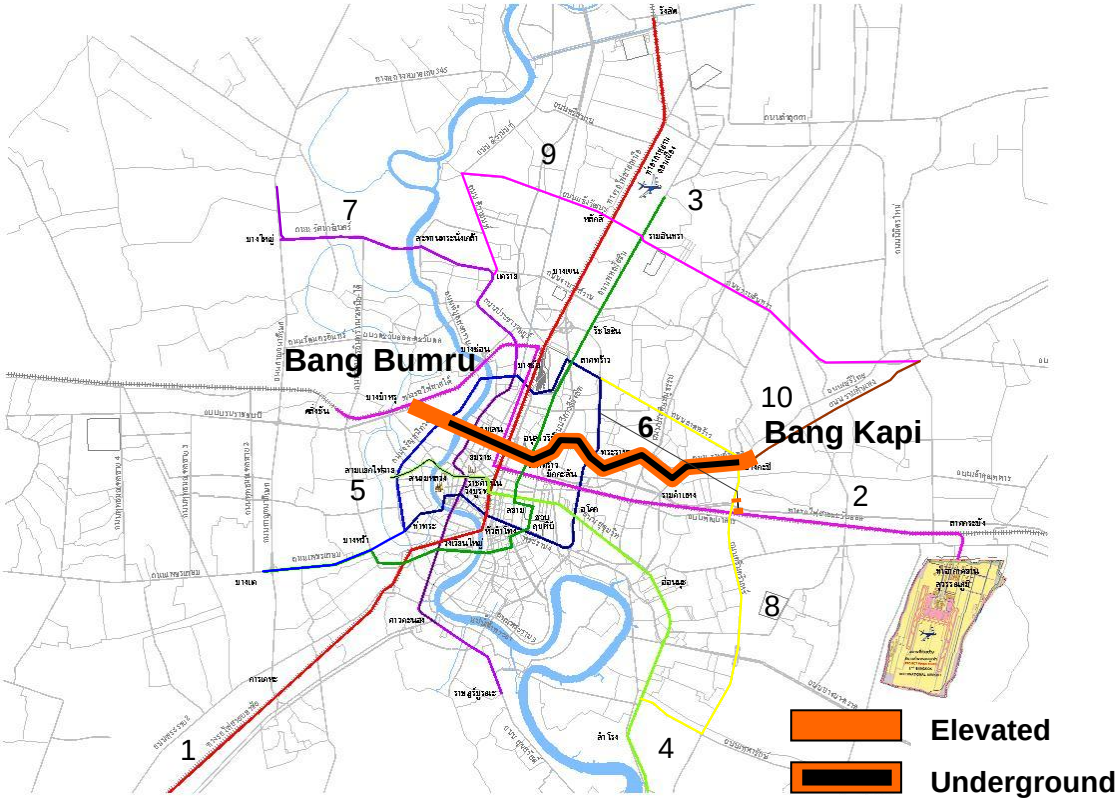
GREEN LINE 1 EXTENSIONS		
From	Saphan Tak Sin	Mo chit
To	Bangwa	Saphan Mai
Length (elevated) km	19	
Length (underground) km	-	
Length (at-grade) km	-	
Total Length km	19	
Stations (elevated)	19	
Stations (underground)	-	
Stations (at-grade)	-	
Total number of Stations	19	
MRT System	Heavy Rail	
Forecast Ridership pass/day	280,000 (Year 2010)	
Design status	Tender documents prepared for D/B contracts	



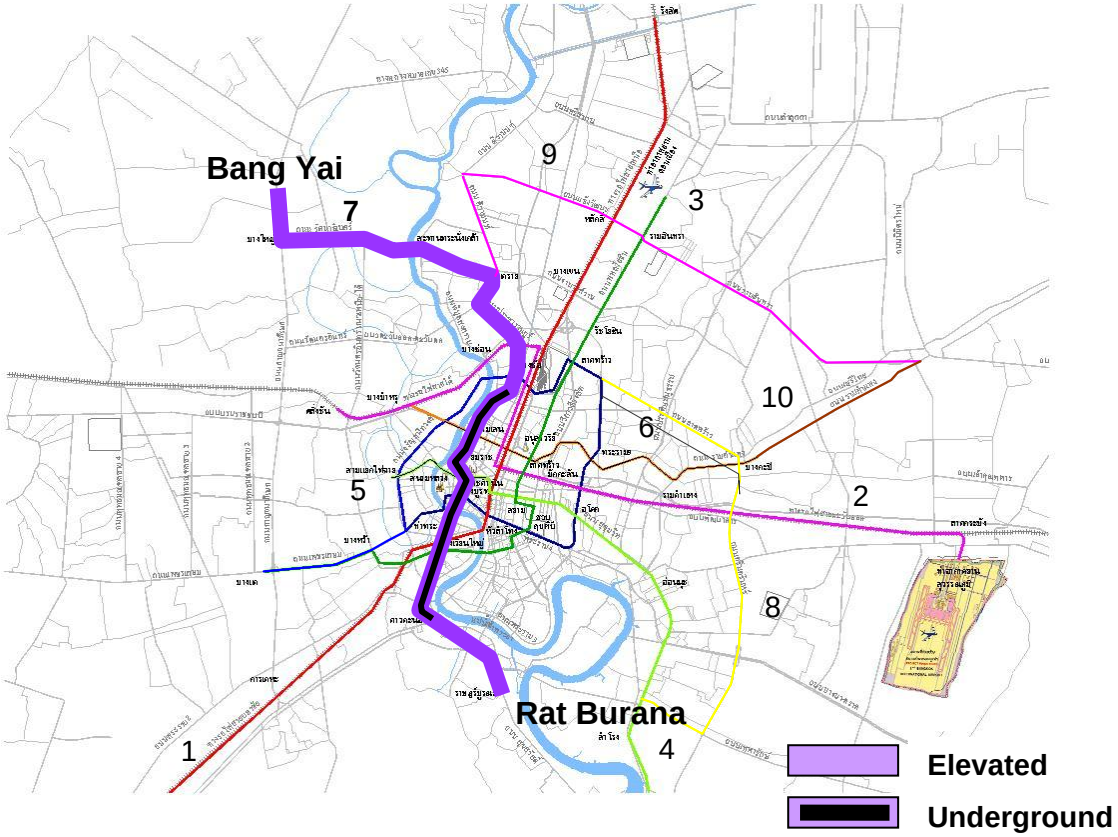
GREEN LINE 2 EXTENSIONS		
From	National Stadium	On Nut
To	Pran Nok	Samut Prakan
Length (elevated) km	17	
Length (underground) km	7	
Length (at-grade) km	-	
Total Length km	24	
Stations (elevated)	14	
Stations (underground)	5	
Stations (at-grade)	-	
Total number of Stations	19	
MRT System	Heavy Rail	
Forecast Ridership pass/day	300,000 (Year 2010)	
Design status	Tender documents prepared for D/B contracts	



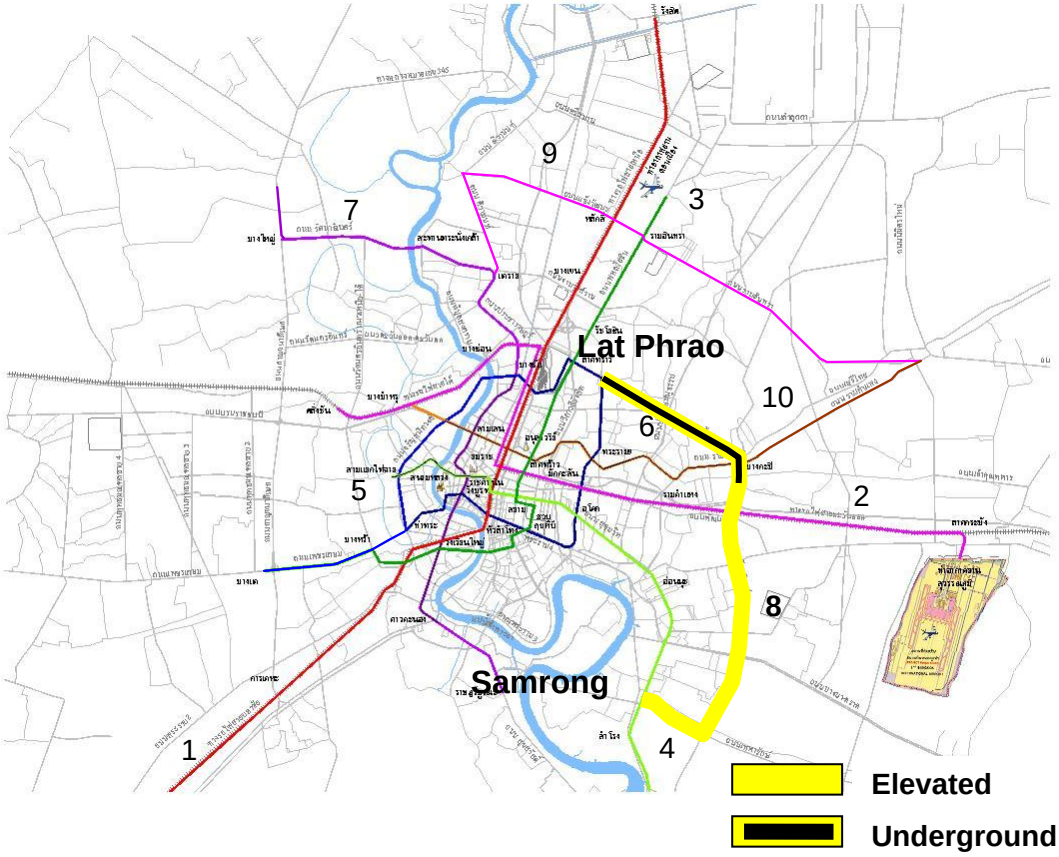
BLUE LINE EXTENSION		
From	Bang Sue	Tha Phra
To	Tha Phra-Hua Lam Phong	Bang Khae
Length (elevated) km	22	
Length (underground) km	5	
Length (at-grade) km	-	
Total Length km	27	
Stations (elevated)	17	
Stations (underground)	4	
Stations (at-grade)	-	
Total number of Stations	21	
MRT System	Heavy Rail	
Forecast Ridership pass/day	500,000 (Year 2010)	
Design status	Tender documents prepared for D/B contracts	



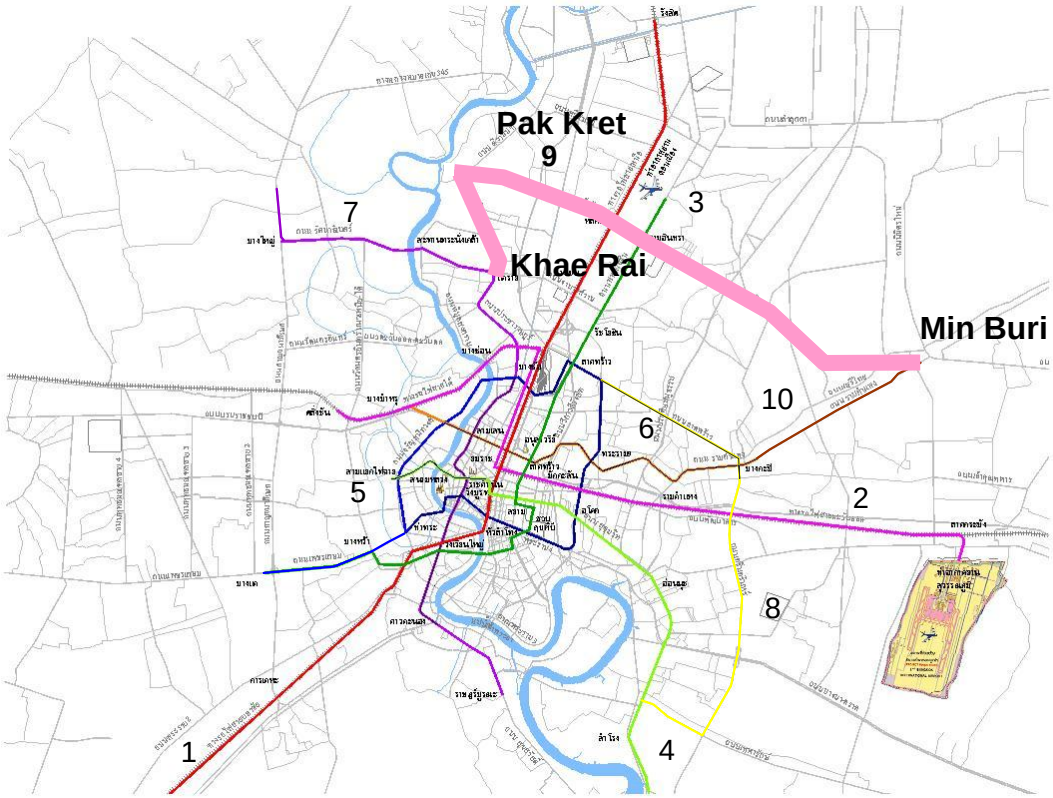
ORANGE LINE	
From	Bang Kapi
To	Bang Bumru
Length (elevated) km	3
Length (underground) km	21
Length (at-grade) km	-
Total Length km	24
Stations (elevated)	2
Stations (underground)	15
Stations (at-grade)	-
Total number of Stations	17
MRT System	Heavy Rail
Forecast Ridership pass/day	368,000 (Year 2010)
Design status	Tender documents prepared for D/B contracts



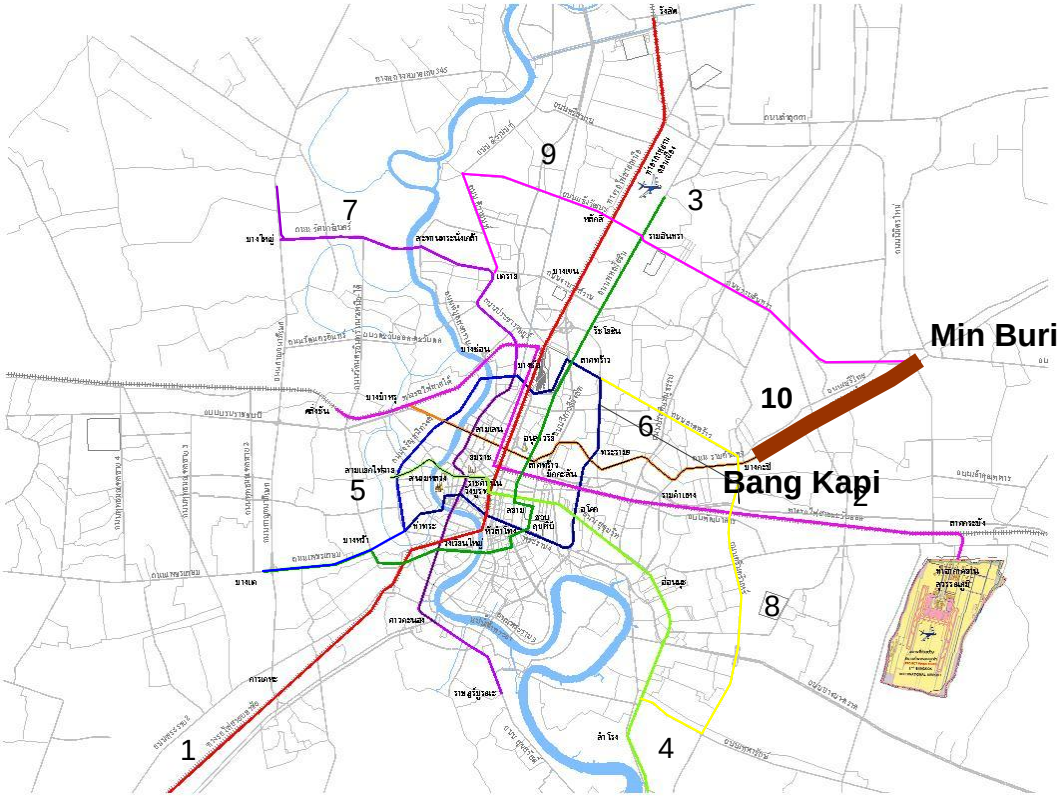
PURPLE LINE	
From	Bang Yai
To	Rat Burana
Length (elevated) km	29
Length (underground) km	14
Length (at-grade) km	-
Total Length km	43
Stations (elevated)	19
Stations (underground)	13
Stations (at-grade)	-
Total number of Stations	32
MRT System	Heavy Rail
Forecast Ridership pass/day	504,000 (Year 2010)
Design status	Tender documents prepared for D/B contracts



YELLOW LINE	
From	Lat Phrao
To	Samrong
Length (elevated) km	22
Length (underground) km	10
Length (at-grade) km	-
Total Length km	32
Stations (elevated)	12
Stations (underground)	8
Stations (at-grade)	-
Total number of Stations	20
MRT System	Light Rail
Forecast Ridership pass/day	-
Design status	Under Planning



PINK LINE	
From	Min Buri
To	Pak Kret- Khae Rai
Length (elevated) km	33
Length (underground) km	-
Length (at-grade) km	-
Total Length km	33
Stations (elevated)	17
Stations (underground)	-
Stations (at-grade)	-
Total number of Stations	17
MRT System	Monorail/ Light Rail/ Heavy Rail
Forecast Ridership pass/day	-
Design status	Under Planning



BROWN LINE	
From	Bang Kapi
To	Min Buri
Length (elevated) km	9.5
Length (underground) km	-
Length (at-grade) km	-
Total Length km	9.5
Stations (elevated)	5
Stations (underground)	-
Stations (at-grade)	-
Total number of Stations	5
MRT System	Heavy Rail
Forecast Ridership pass/day	-
Design status	Under Planning