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INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 88.2 MILLION (US\$124.0 MILLION)

TO THE

SOCIALIST REPUBLIC OF VIETNAM

FOR THE

HO CHI MINH CITY GREEN TRANSPORT DEVELOPMENT PROJECT

May 5, 2015

Transport and ICT Global Practice
East Asia and Pacific Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2015)

Currency Unit	=	VND
1.00 VND	=	US\$0.00004717
US\$1.00	=	21,199.6 VND
SDR 1.00	=	US\$1.4065
US\$1.00	=	SDR 0.7110

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

BAU	Business As Usual
BD	Bidding Document
BP	Bank Procedures
BRT	Bus Rapid Transit
CBA	Cost-benefit Analysis
CBD	Central Business District
CNG	Compressed Natural Gas
CPS	Country Partnership Strategy
CQS	Selection Based on Consultants' Qualifications
DA	Designated Account
DC	Direct Contracting
DOC	Department of Construction
DOF	Department of Finance
DONRE	Department of Environment and Natural Resources
DOT	Department of Transport
DPI	Department of Planning and Investment
DUPA	Department of Urban Planning and Architecture
EBCR	Economic Benefit Cost Ratio
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plan
ENPV	Economic Net Present Value
FA	Financial Agreement
FBCR	Financial Benefit Cost Ratio
FM	Financial Management
FNPV	Financial Net Present Value
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information System
GoV	Government of Vietnam
GT	Green Transport

GTDP	Green Transport Development Project
HCMC	Ho Chi Minh City
HCMC GT	Ho Chi Minh City Green Transport (Project)
IBRD	International Bank for Reconstruction and Development
IC	Individual Consultant Selection Procedure
ICB	International Competitive Bidding
IDA	International Development Association
IEC	Information, Education, and Communication
ISR	Implementation Status and Results Report
ITS	Intelligent Transport System
JICA	Japan International Cooperation Agency
kph	Kilometer per hour
LCS	Least Cost Selection
MAUR	Management Authority for Urban Railways
MOCPT	Management and Operations Center for Public Transport
MOF	Ministry of Finance
MOT	Ministry of Transport
MPI	Ministry of Planning and Investment
MRT	Metro Rail Transit
NCB	National Competitive Bidding
ODA	Official Development Assistance
OP	Operational Policy
PAD	Project Appraisal Document
PADDI	Centre de Prospective et d'Études Urbaines
PC	People's Committee
PDO	Project Development Objective
PM	Particulate Matter
PMU	Project Management Unit
POM	Project Operations Manual
PPIAF	Public-Private Infrastructure Advisory Facility
PT	Public Transport
PTA	Public Transport Authority
QBS	Quality Based Selection
QCBS	Quality and Cost Based Selection
RAF	Resettlement Action Plan
RFP	Request for Proposal
ROW	Right-of-Way
RPF	Resettlement Policy Framework
SA	Social Assessment
SMP	Social Management Plan
SOE	Statement of Expenditure
SSS	Single Source Selection
ST	State Treasury
TA	Technical Assistance
TOD	Transit Oriented Development
TOR	Terms of Reference

UCCI	Urban-Civil Works Construction Investment Management Authority
ULSD	Ultra-low Sulfur Diesel
VKM	Vehicle Kilometers
VDIC	Vietnam Development Information Center
VND	Vietnamese Dong
VN-PPTAF	Vietnam Project Preparation Technical Assistance Facility
VOC	Vehicle Operating Cost
VOT	Value of Time
VSL	Variable Spread Loan
WA	Withdrawing Application
WB	World Bank

Regional Vice President:	Axel van Trotsenburg, EAPVP
Country Director:	Victoria Kwakwa, EACVF
Senior Global Practice Director:	Pierre Guislain, GTIDR
Global Practice Director	Jose Luis Irigoyen, GTIDR
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VIETNAM
Ho Chi Minh City Green Transport Development Project

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PAD DATA SHEET*Vietnam**Ho Chi Minh City Green Transport Development (P126507)***PROJECT APPRAISAL DOCUMENT***EAST ASIA AND PACIFIC**0000009080*

Report No.: PAD1305

Basic Information			
Project ID P126507	EA Category B - Partial Assessment	Team Leader(s) Arturo Ardila Gomez	
Lending Instrument Specific Investment Loan	Fragile and/or Capacity Constraints []		
	Financial Intermediaries []		
	Series of Projects []		
Project Implementation Start Date 24-Aug-2015	Project Implementation End Date 30-Jun-2020		
Expected Effectiveness Date 24-Aug-2015	Expected Closing Date 31-Dec-2020		
Joint IFC No			
Practice Manager/Manager Michel Kerf	Senior Global Practice Director Pierre Guislain	Country Director Victoria Kwakwa	Regional Vice President Axel van Trotsenburg
Borrower/Recipient: Socialist Republic of Vietnam			
Responsible Agency: Ho Chi Minh City People's Committee			
Contact: Telephone No.:	Mr. Luong Minh Phuc (84-8) 822-3651	Title: Email:	Director, UCCI luongminhphuc@gmail.com
Project Financing Data(in USD Million)			
[] Loan	[] IDA Grant	[] Guarantee	
[X] Credit	[] Grant	[] Other	
Total Project Cost:	137.45	Total Bank Financing:	124.00
Financing Gap:	0.00		

Financing Source						Amount				
BORROWER/RECIPIENT						13.45				
International Development Association (IDA)						124.00				
Total						137.45				
Expected Disbursements (in USD Million)										
Fiscal Year	2016	2017	2018	2019	2020	2021	0000	0000	0000	0000
Annual	1.00	9.00	9.00	44.00	56.00	5.00	0.00	0.00	0.00	0.00
Cumulative	1.00	10.00	29.00	73.00	119.00	124.00	0.00	0.00	0.00	0.00
Institutional Data										
Practice Area (Lead)										
Transport & ICT										
Contributing Practice Areas										
Cross Cutting Topics										
<input checked="" type="checkbox"/> Climate Change <input type="checkbox"/> Fragile, Conflict & Violence <input checked="" type="checkbox"/> Gender <input type="checkbox"/> Jobs <input type="checkbox"/> Public Private Partnership										
Sectors / Climate Change										
Sector (Maximum 5 and total % must equal 100)										
Major Sector				Sector		%	Adaptation Co-benefits %		Mitigation Co-benefits %	
Public Administration, Law, and Justice				Public administration-Transportation		20	20		80	
Transportation				Urban Transport		80	20		80	
Total						100				
<input type="checkbox"/> I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.										
Themes										
Theme (Maximum 5 and total % must equal 100)										
Major theme				Theme				%		
Urban development				City-wide Infrastructure and Service Delivery				100		

Total		100
Proposed Development Objective(s)		
The project development objective is to improve the performance and efficiency of public transport along a high priority corridor in Ho Chi Minh City.		
Components		
Component Name	Cost (USD Millions)	
Bus Rapid Transit Corridor Development	122.80	
Institutional Strengthening	5.00	
Contingency	9.65	
Systematic Operations Risk- Rating Tool (SORT)		
Risk Category	Rating	
1. Political and Governance	Substantial	
2. Macroeconomic	Moderate	
3. Sector Strategies and Policies	Substantial	
4. Technical Design of Project or Program	Moderate	
5. Institutional Capacity for Implementation and Sustainability	Substantial	
6. Fiduciary	Substantial	
7. Environment and Social	Moderate	
8. Stakeholders	Moderate	
9. Other		
OVERALL	Substantial	
Compliance		
Policy		
Does the project depart from the CAS in content or in other significant respects?	Yes []	No [X]
Does the project require any waivers of Bank policies?	Yes []	No [X]
Have these been approved by Bank management?	Yes []	No []
Is approval for any policy waiver sought from the Board?	Yes []	No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No []
Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04		X
Forests OP/BP 4.36		X

Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11		X
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

Legal Covenants

Name	Recurrent	Due Date	Frequency
Sections I and II of Schedule 2 to the Financing Agreement	X		CONTINUOUS

Description of Covenant

The Recipient shall maintain the implementation arrangements and the Project monitoring reporting and evaluation as described respectively in Sections I and II of Schedule 2 to the Financing Agreement.

Conditions

Source Of Fund	Name	Type
IDA	Additional effectiveness condition	Effectiveness

Description of Condition

The Subsidiary Agreement has been executed on behalf of the Recipient and the Ho Chi Minh City People's Committee

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Arturo Ardila Gomez	Team Leader (ADM Responsible)	Lead Transport Economist	Transport Economist	GTIDR
Ba Liu Nguyen	Procurement Specialist	Procurement Specialist	Procurement	GGODR
Cung Van Pham	Financial Management Specialist	Sr Financial Management Specialist	Financial Management	GGODR
Ajay Kumar	Team Member			GTIDR
Anita Shrestha	Team Member	Procurement Assistant	Procurement	GGODR
Chanin Manopiniwes	Team Member	Infrastructure Economist	Transport Economist	GTIDR
Geoffrey John Kurgan	Team Member	E T Consultant	Road Safety	GTIDR

Georges Bianco Darido	Peer Reviewer	Sr Transport. Spec.	Urban Transport	GTIDR
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Thao Phuong Tuong	Team Member	Program Assistant	Assistant	EACVF
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Vellet E. Fernandes	Team Member	Temporary	Assistant	GWADR
Z. Joe Kulenovic	Team Member	Consultant	Economic Development	GTCDR

Extended Team

Name	Title	Office Phone	Location
Brian McCollom	Public Transport Specialist		Washington Dc
Samuel Zimmerman	Sr Urban Transport Specialist, Consultant		Washington DC

Locations

Country	First	Location	Planned	Actual	Comments
---------	-------	----------	---------	--------	----------

	Administrative Division				
Vietnam	Ho Chi Minh City	Ho Chi Minh City		X	
Consultants (Will be disclosed in the Monthly Operational Summary)					
Consultants Required? Consultants will be required					

I. STRATEGIC CONTEXT

A. Country Context

1. Vietnam has achieved significant development success over the past 25 years. Reforms introduced in 1986 have helped to transform the country from a centrally-planned economy to a more market-oriented one. This has spurred economic growth, which has averaged 6.4 percent from 2000 to 2012. Also from 2000 to 2012, Vietnam's per capita income (Atlas method) almost quadrupled to US\$1,560 in 2012, while the poverty level fell to 17.2 percent in 2012.
2. While Vietnam's economic growth has been based on its abundant natural resources (e.g., fisheries, forestry, and mineral resources), the manufacturing sector's share of both GDP and employment has been increasing over the past decade. This process has been accompanied by rapid population growth in the country's largest cities: Hanoi (the national capital), Ho Chi Minh City (HCMC), as well as some medium-sized cities. With this rapid industrialization and urbanization, Hanoi and HCMC have solidified their status as the country's two principal economic and industrial centers.
3. Improving urban infrastructure is a priority for Vietnam's government. To ensure continued strong economic performance and achieve Vietnam's goal of successfully transitioning to middle-income status, the national government is seeking to address infrastructure constraints to the country's economic competitiveness. Given HCMC's pivotal role in the national economy, there is a focus on improving the quality of urban infrastructure and services in the city, including the development of sustainable urban transport systems.

B. Sectoral and Institutional Context

4. With 7.7 million inhabitants in the city proper and over 9 million in the metropolitan area, Ho Chi Minh City is Vietnam's largest city. Located on the banks of the Saigon River – 60 km from the East Sea coast and 1,760 km south of Hanoi – the city exhibits a monocentric structure, with the highest population density reaching 500 inhabitants per hectare in the central area and a citywide average of 150 inhabitants per hectare. In the past decade, however, much of the city's population and job growth has taken place in peripheral areas, particularly to the northwest of the city center in the Tan Binh and Go Vap districts near the airport. Recently, there has been significant development in the central business district (CBD), located in District 1, particularly of office towers. To preserve the historic neighborhoods in District 1, further expansion of the city's CBD is planned across the Saigon River, in District 2.
5. HCMC is Vietnam's principal economic hub, generating a fifth of national GDP. The city's annual GDP growth has averaged nearly 11% for the past five years.¹ HCMC and its surrounding region account for almost half (45 percent) of Vietnam's total manufacturing output. However, HCMC is seeking to transition from labor-intensive manufacturing industries to higher value-added, more knowledge-intensive sectors. This will require significant investments in education, social protection, and infrastructure, including upgrading transport and mobility.
6. HCMC is characterized by a very limited supply of public transport services, and a very low reliance on public transport for mobility within the city. Currently, buses are the only mode

¹ www.eng.hochiminhcity.gov.vn.

of public transport available in the city, with HCMC's metro rail system still under construction. There are presently only about 3,000 buses in HCMC, of which fewer than 2,000 actually operate on scheduled routes available to the general public. This contrasts with similarly-sized cities in other countries, such as Bangalore, India, with about 6,000 buses serving a population of 7 million, and Wuhan, China, with more than 7,000 buses for a city of 9 million people. Accordingly, buses account for a paltry 1.4% of all daily passenger trips in HCMC, lower than in almost any other city of this size. Bus services are currently supplied by 11 different companies, including one state-owned enterprise (Saigon Bus Company) as the largest provider, one large private company, one joint venture, and 8 private cooperatives.

7. Starting in 1994, successive efforts to revitalize the city's bus system – by increasing supply and improving quality to boost ridership – have had very limited success. In 2000, reforms to HCMC's bus system were introduced, along with the procurement of new vehicles by the city for Saigon Bus and the private cooperatives. Bus ridership increased for a while, peaking at fewer than 5 percent of all passenger trips in the city in 2007, and then subsequently declined to less than 2 percent by 2010. With such low utilization of public transport, large subsidies are needed to cover the costs of operating bus services in the city. Fare revenues cover less than 60 percent of the bus operators' total costs, with the remainder covered by government subsidies – a significant burden on municipal finances. Bus services are disproportionately utilized by vulnerable segments of society unable to drive or to afford other means of getting around the city, such as the very poor, the elderly, women with children, students, and persons with disabilities.

8. HCMC residents' extremely low utilization of public transport services contrasts with their heavy reliance on motorcycles for mobility. In 2010, motorcycles accounted for almost two thirds (62%) of all daily trips in the city, followed by walking (17%), bicycles (14%), taxis (4%), buses (1.4%), and cars (1.2%).² Motorcycles provide flexible, on-demand, low-cost, door-to-door mobility for a broad variety of trips, well-suited to HCMC's year-round moderate climate. Motorcycles are faster than buses travelling on the same roads in mixed traffic.³ Lax regulation and enforcement enable parking almost anywhere, including on sidewalks that should be reserved for pedestrians. Motorcycle parking in HCMC is usually free.

9. Heavy reliance on motorcycles impacts air quality and traffic safety. Besides adversely affecting the financial viability of public transport services and overall urban development, the heavy reliance on motorcycles is highly detrimental to air quality and traffic safety in the city. On any given day, approximately 6.6 million motorcycles circulate in the HCMC metropolitan area.⁴ With so many motorcycles, air quality has deteriorated dramatically in recent years, leading to increased rates of respiratory illness. For example, due to high emission levels in the

² Consortium Of Consultancy, Technology Development And Transport Construction– An Son Jsc–Center For Procurement Consultancy And Investment Support. 2014. HCMC Green Transport Development Project Feasibility Study Report, Final Report.

³ For example, along the Cau Rach Chiec-Mien Tay corridor, motorcycle speeds averaged 32-36 km/h, while bus speeds were in the 11-24 km/h range, according to Integrated Transport Planning Ltd. 2014 "Ho Chi Minh BRT Technical Study", final report.

⁴ At about 730 motorcycles per 1000 people, this constitutes a private vehicle ownership rate approaching or even exceeding that in high income countries, according to own calculations based on population and motorcycle data from <http://english.vietnamnet.vn/fms/society/71917/the-number-of-motorcycles-has-exceeded-2020-planning.html>

city, more than 90% of children under the age of five suffer from respiratory illnesses.⁵ And since motorcycles are capable of high speeds but offer very little protection to riders, their effects on traffic safety are also grave. Traffic accidents involving motorcycles injure and kill both riders and pedestrians, and are a key cause of households' fall into poverty as they cope with medical expenses and lost income.⁶

10. With increased affluence, automobile ownership in HCMC is also rising steadily, exacerbating congestion on the city's already crowded streets. The number of registered cars in HCMC almost quadrupled in just over a decade, growing from 131,000 in 2001, to 500,000 in 2012, equivalent to an annual growth rate of over 13 percent. This growth rate can be expected to accelerate after 2018, when import taxes among ASEAN countries (including major automotive exporters like Thailand and Malaysia) will be eliminated, significantly reducing the purchase price of new cars for HCMC residents.

11. Rising car ownership, with motorcycles, cars, and buses all competing for limited road space in mixed traffic, is further aggravating congestion and traffic safety. Each type of vehicle has its own way of moving, with motorcycles being the most agile (and dangerous), and buses the slowest. While motorcycles and cars want to stop as little as possible, buses need to stop frequently to pick up and drop off passengers. The conflicts of these different flows in mixed traffic lead to lower speeds for all, particularly for public transport, and increased accidents. In the Cau Rach Chiec-Mien Tay corridor alone, the casualty rate (including injuries and fatalities) increased 4.8 times between 2010 and 2013.⁷

12. Growing congestion and limited public transport options disproportionately affect the most vulnerable segments of the population – women, youth, the elderly, the disabled, the very poor, and in general anyone reliant on public transport.⁸ Travel between lower-cost residential areas and dispersed employment centers can take as much as two hours each way, requiring multiple, costly interchanges, in practice acting as an impediment to employment. Poor facilities

⁵ Bang Quoc Ho, Alain Clappier, Golay François. 2012. "Air pollution forecast for Ho Chi Minh City, Vietnam in 2015 and 2020." *Air Quality, Atmosphere and Health Journal*. Vol. 4, No. 2, pp. 145-158.

⁶ Motorcycles' involvement in accidents is high even in more developed countries with much higher traffic safety standards than Vietnam. For example, in 2009 Japan's fatality rate from road accidents was 5.0 per 100,000 inhabitants, while Vietnam's rate was more than three times higher, at 16.1 per 100,000 inhabitants, of whom up to 70% were motorcyclists. Growing use of motorcycles has been a key factor in the increase in road accidents in East Asia/Pacific. See Vu Anh Tuan. 2012. "Long-term strategies for motorcycle management in Asian Cities." Presented at the Meeting on "Transportation Development Planning –Issues and Solutions." Global Road Safety Facility, The World Bank; Institute for Health Metrics and Evaluation. 2014; and "Transport for Health: the Global Burden of Disease from Motorized Road Transport." The World Bank.

⁷ Own calculations based on Integrated Transport Planning Ltd. 2014. "Ho Chi Minh BRT Technical Study." Final report, Table 3-3.1.

⁸ Women account for over 60 percent of all public transport users; a quarter of them ride buses, while only five percent of men do. Women above the age of 36 on average make more trips (2.76/day) than other groups (under 2.5), mostly for non-work purposes, such as social trips and daily errands. Transit services are designed to serve morning and afternoon peak commuting trips, when travel is most concentrated in terms of time and geography. Travel characteristics of all residents, with a focus on women, children, and senior citizens living along the proposed BRT corridor, were assessed using a household survey, a broad-based participatory approach, and focus group discussions. See Integrated Transport Planning Ltd. "Ho Chi Minh BRT Technical Study." Final report, November 2014, pp. 8-9.⁹ Information also from focus groups and household surveys.

for the visually impaired, restricted boarding and alighting areas, drivers' discourteous behavior, and limited information on bus schedules make travel difficult for people without alternatives.⁹

13. HCMC's government has enacted a plan to address these problems. The *Master Plan for Public Transport Development in Ho Chi Minh City to 2025* seeks to raise the capacity of the public transport system to meet 25-30% of the total travel demand in the city, encouraging the use of public transport, reducing motor vehicle use, and improving traffic safety.¹⁰ The plan calls for a hierarchical approach in which seven metro lines, three tramway lines, six Bus Rapid Transit (BRT) lines, and 212 bus lines together constitute an integrated transit system. The Master Plan seeks to increase the supply and quality of public transport while regulating motorcycle use by enacting and enforcing regulations to make motorcycle use safer but less convenient, for example by regulating parking and the use of helmets and safety vests.¹¹

14. In the meantime, improvements to public transport are needed to ensure short- and medium-term alternatives to private vehicle use. The Master Plan envisages public transport with exclusive right of way as the backbone of an integrated transit system, giving it the space needed to perform efficiently, with stations allowing convenient access and transfer, even from motorcycles that can park there. Public transport can thus become a viable alternative to motorcycles and cars, helping to reduce congestion and enhancing mobility in HCMC.¹²

15. In this context, the Government of Vietnam has approached the World Bank for support for its first BRT line, a green-corridor demonstration project between An Lac in the southwest and Rach Chiec in the northeast, running along the Vo Van Kiet and Mai Chi Tho major arterial boulevards. BRT¹³ is a proven technology, and the World Bank has financed several lines around the world.¹⁴ The proposed BRT demonstration project seeks to show the advantages of BRT and help HCMC extract lessons for the implementation of the proposed six-line network. The project is designed to ensure that, consistent with a greening approach, urban development relates positively to BRT in terms of form and density, including surrounding development and connectivity to BRT. The project also seeks to demonstrate the benefits of BRT technology and should serve to jump-start the implementation of the BRT network contained in the Master Plan by teaching important lessons on actual implementation.

16. The project also seeks to lay a foundation for HCMC to build the institutions needed by a future integrated public transport system. The future metro, tramway, BRT, and bus lines will need to be coordinated to provide users with an integrated service that makes travel convenient.

⁹ Information also from focus groups and household surveys.

¹⁰ The Master Plan aims at having the seven metro and three tramway lines supply 3.81 million trips per day; the BRT network will supply 1.6 million trips per day, and the conventional network will provide 1.8 million trips per day (Integrated Transport Planning Ltd. 2014. "Ho Chi Minh BRT Technical Study." Final report, pg. 3).

¹¹ See Economic and Policy Services Pty Ltd. 2014. "Motorization and Urbanization in East Asia: Motorcycle, Motor Scooter & Motorbike Ownership & Use in Hanoi." World Bank Group and Australian Aid, section 3.1.

¹² For strategies on managing motorcycles and improving public transport See Vu Anh Tuan. 2012, opus cit; and Economic and Policy Services Pty Ltd. 2014. "Motorization and Urbanization in East Asia: Motorcycle, Motor Scooter & Motorbike Ownership & Use in Hanoi." World Bank Group and Australian Aid.

¹³ BRT segregates traffic flows by providing exclusive lanes for buses and exclusive lanes for cars, motorcycles, and trucks. Speeds increase, particularly for public transport. Public transport also becomes more reliable and accidents go down. BRT is key to any city that wants to improve public transport, even if also investing in metro.

¹⁴ Nigeria Lagos (P112956), Lima (P035740), Bogota (P006872 and P074726), and national BRT programs in Colombia (P082466) and Mexico (P1071159), among others.

This integration implies, inter alia, a unified fare structure and having stations and stops of the different modes integrated so that transfers are as seamless and convenient as possible. By building capacity within HCMC's existing institutions with responsibility in urban transport regulation, management, and operations, the project would pave the way for the eventual establishment of a unified citywide Public Transport Authority to coordinate strategy, services, and fares across all public transport modes.

17. The World Bank has engaged directly with HCMC at the city level for over a decade. The Bank's assistance to HCMC has included investment lending and technical assistance operations for urban upgrading, water supply and sanitation, drainage improvements, and infrastructure finance. The Bank's assistance is shifting from a sectoral focus towards an integrated city-wide approach in support of the three pillars outlined in the Country Partnership Strategy (CPS): *competitiveness* (developing a financing framework for integrated urban development), *sustainability* (promoting resilient urban development, including BRT, environmental sustainability, and flood protection and risk management), and *opportunity* (improving low-income areas by upgrading housing and basic infrastructure).

C. Higher Level Objectives to which the Project Contributes

18. The project's objectives and components are aligned with the CPS 2012-2016. In particular, the project directly supports all of its three pillars: (i) strengthening Vietnam's *competitiveness* in the regional and global economy in the country's largest economic growth node through more efficient and effective public transport; (ii) increasing the *sustainability* of HCMC's growth by contributing to the development of a multimodal public transport system that both induces more environment-friendly development patterns and curbs carbon-intensive private vehicle use; and (iii) broadening economic, health, education, and social *opportunities* for all citizens, particularly women, the elderly and poor people, by providing more effective, affordable, and accessible public transport. The project would also be aligned with the pillars of core and transformational engagements outlined in the World Bank Group Infrastructure Strategy Update, FY2012-2015.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

19. The project development objective is to improve the performance and efficiency of public transport along a high priority corridor in Ho Chi Minh City.

B. Project Beneficiaries

20. The project will provide benefits to multiple sectors and segments of society. Beneficiaries include:

- (a) *HCMC government departments and agencies*, benefitting from their improved capacity to manage a multi-modal urban transport system.
- (b) *Existing and new public transit passengers*, benefitting from faster, safer, and more reliable services.
- (c) *Vulnerable groups*, benefitting from safe and more accessible public transport. This includes the *poor and others without access to private forms of transport, women, and young people* who will benefit from affordable and convenient mobility that opens up education and job opportunities.

- (d) *Pedestrians and motorists*, benefitting from improved safety.
- (e) *Residents and visitors*, benefitting from reduced traffic accidents and congestion.
- (f) *Private sector*, benefitting from transit-oriented, mixed use development opportunities at stations and terminals.

C. PDO Level Results Indicators

21. The key results indicators are listed below; the indicators focus on measurements along the project corridor.

- (a) Number of passengers per day using the BRT system.
- (b) Percentage of people satisfied with the service provided by Public Transport, disaggregated by gender and income.
- (c) Travel time by public transport along the project corridor, measured as in-vehicle time from An Lac to Ky Con (14.1 km).
- (d) Public transport accessibility, measured by the number of people living, working, and studying within a door-to-door transit travel time of 45 minutes to Thu Thiem.
- (e) Difference in greenhouse gas (GHG) emissions along the project corridor compared to the business-as-usual (BAU) case.

22. The definitions for performance and efficiency of public transport in the PDO are explained by the indicators used to measure each one. Indicators (a), (b) and (c) measure the “improved performance of public transport” aspect of the PDO; as public transport performance improves, more people will use its services because it is faster, and express satisfaction. Similarly, indicators (d) and (e) measure the “improved efficiency of public transport” part of the PDO. Indicator (d) measures accessibility, with more efficient public transport allowing users to reach more destinations per unit of time. Moreover, over many years, more efficient public transport induces a positive change in urban development toward denser development, again making more destinations available to users per unit of time than would have been the case in other development scenarios. More efficient public transport also has lower local and global emissions (indicator (e)) as relatively fewer buses are used to move more passengers. Finally, an accessible BRT also implies better sidewalks and safe access to stations, as also included in this project.

23. Implementation progress will be measured by intermediate results indicators, as shown in Annex 1.

III. PROJECT DESCRIPTION

A. Project Components

24. **Component 1: Bus Rapid Transit Corridor Development (Total Cost: US\$122.80 million, GoV: US\$12.45 million, IDA: US\$110.36 million):** Development of a Bus Rapid Transit (“BRT”) corridor between An Lac in the southwest of HCMC to Rach Chiec in the northeast of HCMC, including the following:

- (a) Carrying out the construction and supervision of the BRT infrastructure and facilities;
- (b) Improvement of the traffic management system, including the modification of intersection controls and the deployment of an intelligent transport system and associated technologies;

- (c) Development of a fare collection system, including smart cards and servers;
- (d) Provision of BRT vehicles and fueling facilities;
- (e) Carrying out integrated planning and urban development measures around BRT stations;
- (f) Carrying out of marketing and public communication activities;
- (g) Provision of support for Project management; and
- (h) Land acquisition and resettlement.

25. Component 2: Institutional Strengthening (Total Cost: US\$5.00 million, IDA: US\$5.00):

- (a) Carrying out of training programs and technical support for relevant implementing agencies in Project management, urban transport planning, and public transport operation including strategic support for the operation of the BRT system;
- (b) Carrying out of monitoring and evaluation activities, including the assessment of the BRT system success on an on-going basis;
- (c) Carrying out of feasibility and design studies for maximizing connectivity and ridership and continued development of the BRT system; and
- (d) Carrying out of a study to develop the optimal fare structure and fare product range for the public transportation system.

B. Project Financing

26. The lending instrument for this project will be an Investment Project Financing (IPF) Credit. The Project has a total cost of US\$ 137.45 million and will be financed by an International Development Association Credit of SDR88.2 million, equivalent to US\$ 124.0 million. The project will also be co-financed by the Socialist Republic of Vietnam (US\$ 13.45 million). The International Development Association Credit is in blend terms with a maturity of 25 years including a grace period of 5 years. The IDA Credit terms also include interest of 1.25%, service charge of 0.75%, and commitment fee 0.50% (subject to waiver determined by the Board on a yearly basis).

27. To facilitate the Ho Chi Minh City People's Committee¹⁵ (HCMC PC) implementation of the Project, the Recipient shall make the proceeds of the Financing available to the HCMC PC under a Subsidiary Agreement between the HCMC PC and the Recipient, represented by its Ministry of Finance, under terms and conditions acceptable to the Association, which shall include the obligations of the HCMC PC to:

- (a) repay the proceeds of the Financing over a period of 25 years, inclusive of a grace period of 5 years;
- (b) ensure that the Project is carried out in accordance with the provisions of the Anti-Corruption Guidelines applicable to recipients of loan proceeds other than the Recipient;
- (c) ensure that the Project is carried out in accordance with the provisions of the Project Operations Manual, and except as the Association shall otherwise agree in writing, not assign, amend, abrogate, or waive, or permit to be assigned, amended, abrogated, or waived, the aforementioned, or any provision thereof;

¹⁵ The HCMC People's Committee is the executive arm of the city government. It has 13 members, including a Chairperson, six vice-chairs, and six other members. The legislative arm is the People's Council, which has 95 deputies. See: <http://www.eng.hochiminhcity.gov.vn/aboutgovernment/Lists/Posts/AllPosts.aspx?CategoryId=10>; and <https://asiafoundation.org/resources/pdfs/MunicipalGovernmentinVN.pdf>.

- (d) ensure that the Project is carried out in accordance with the provisions of the Safeguard Instruments, and except as the Association shall otherwise agree in writing, not assign, amend, abrogate, or waive, or permit to be assigned, amended, abrogated, or waived, the aforementioned, or any provision thereof;
- (e) ensure that: (i) an acceptable financial management system is maintained and financial statements are prepared in accordance with consistently applied accounting standards acceptable to the Association, both in a manner adequate to reflect the operations and financial condition of the HCMC PC, including the operations, resources, and expenditures related to the Project; and (ii) such statements are audited by independent auditors acceptable to the Association, in accordance with consistently applied auditing standards acceptable to the Association, and such audited financial statements are furnished to the Recipient and the Association and made publicly available in a timely fashion and in a manner acceptable to the Association; and
- (f) ensure that procurement of the goods, works, and non-consulting and consultants' services required for the Project is carried out in accordance with the provisions of Section III of this Schedule 2, as said provisions may be further elaborated in the Procurement Plan.

28. The Recipient shall exercise its rights under the Subsidiary Agreement in such manner as to protect the interests of the Recipient and the Association and to accomplish the purposes of the Financing. Except as the Association shall otherwise agree, the Recipient shall not assign, amend, abrogate or waive the Subsidiary Agreement or any of its provisions.

C. Project Cost and Financing

29. The following table shows the Project cost disaggregated by component and financing source.

Project Component	Project Cost	Government of Vietnam	IDA
1. BRT Corridor Development	122.80	12.45	110.36
Road	20.09	-	20.09
Pedestrian bridges	9.63		9.63
BRT stations	6.79		6.79
Thu Thiem Technical Facility (Depot)	12.94		12.94
Rach Chiec Multi-modal Interchange Terminal	5.28		5.28
Motorcycle parking	1.71		1.71
Planning Integration and urban renewal	10.16		10.16
ITS and fare collection	13.01		13.01
BRT Vehicles	10.29		10.29
Project management	10.41	5.17	5.24
Supervision, marketing and communication	16.68	1.47	15.22
Land acquisition & resettlement	5.81	5.81	0.00
2. Institutional Strengthening	5.00	0.00	5.00
Contingency	9.64	1.00	8.64
TOTAL	137.45	13.45	124.00

D. Lessons Learned and Reflected in the Project Design

30. Several lessons from previous BRT development projects have been integrated into the design of the project. First, a strong institutional basis for coordinated planning, implementation and operations/regulation is critical to the success of urban passenger transport. Implementation of BRT in the “Green Corridor” marks the beginning of a new era of multi-modal urban passenger transport in HCMC, with BRT services complementing existing local bus services and new MRT lines. This change will require institutional strengthening, first of the existing institutions and later involving the establishment of a new, multi-modal passenger transport authority. Moreover, when no single public transport authority for all modes and operators is available, the overall public transport system is less convenient for travelers as a result of unnecessary transfers, long walks, and multiple fare payments using different mediums. This lack of integration would not only discourage the use of public transit, but also can lead to inefficient competition among modes and costly procurement practices. The project will focus on integrating all HCMC public transport services irrespective of mode and operator, to create a single source for passenger information and a common basis for fares and fare collection.

31. Second, international experience has shown that the implementation of BRT is a big challenge and requires considerable up-front preparation and consensus building that must continue during implementation. BRT is a “system,” which requires extensive and continuous project consultations and discussion—started during preparation—with all interested parties (including traffic police, departments of planning and construction, existing bus operators, and users) to understand their needs. Consultations should be on all relevant issues, including transitway design; service and operations planning; design of stations and terminals; design of the ticketing systems, fare levels, and structures; regulation and ownership of BRT vehicles; traffic and non-motorized transport (NMT) safety measures; and traffic management strategies and enforcement. The preparation of this project involved extensive consultation following this practice. BRT projects also have to include a focus on strengthening the regulatory framework, organizing and regulating existing services, bringing current operators on board, and understanding the needs of users through surveys and focus group discussions.

32. Third, the BRT must be made a catalyst for sustainable urban development—a focus of this particular project from the beginning. The BRT as a catalyst for sustainable urban development involves unusually close coordination with land planning and permitting agencies and private developers. The project includes elements to lay the foundation for good urban development around the station and transit-oriented development. For this reason, BRT planning and design must be very context-specific, reflecting urban, physical, and operational conditions in the corridor and city in question. BRT has a great potential to revolutionize the image and efficiency of public transport, but it is important to show sensitivity to the city-specific context.

33. Fourth, it is also important to develop an incremental phased approach with a focus on early deliverability and future network expansion. One of the key lessons from places as diverse as Ahmedabad (India), Jakarta (Indonesia), Lagos (Nigeria), Mexico City (Mexico), Quito (Ecuador), and Bogota and Pereira (Colombia) is that it is important to develop a BRT *network* (not just a single corridor), and—equally important—to develop it in an incremental, phased approach to demonstrate the concept and build popular momentum and political support.

34. Fifth, early development and implementation of a proper grievance and redress mechanism, together with a formal, multimedia communications strategy addressing the full spectrum of stakeholders, is critical. Skillful management of stakeholder expectations and grievances, two-way communication, and public involvement increase the chances of project success. The first phase of the HCMC BRT will involve multiple stakeholders, invite and encourage public involvement and feedback, and establish a grievance and redress mechanism.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

35. Ho Chi Minh City People's Committee:¹⁶ HCMC PC is the Project's Line Agency responsible for overall project management, policy setting, and providing guidance on and oversight of project implementation. The HCMC PC will closely coordinate with all concerned agencies, review and approve the project procurement plan, detailed designs, and cost estimates, and issue land acquisition/allocation decisions. HCMC PC will exercise these responsibilities with the support of the Department of Transport (DOT), the Urban-Civil Works Construction Investment Management Authority (UCCI), and other related city agencies, such as the Department of Urban Planning and Architecture (DUPA), the Department of Finance (DOF), the Department of Planning and Investment (DPI), the Department of Construction (DOC), the Management and Operations Center for Public Transport (MOCPT), Traffic Police, the Management Authority for Urban Railways (MAUR), and the Department of Natural Resources and Environment (DONRE), among others. HCMC PC will: (i) provide direction to the project and implementation agencies; (ii) coordinate among implementing agencies and stakeholders; (iii) monitor and review project implementation; and (iv) provide guidance on objectives, problems, resources, and project planning.

36. UCCI: UCCI will be the project owner. To implement the project, UCCI has already set up a PMU¹⁷ within its organizational structure. UCCI will be responsible for supervising this PMU, and also review and appraise all relevant submissions coming from this unit. UCCI will be responsible for the overall management of the project procurement and will sign all project contracts. However the Procurement Plan is subject to the approval of HCMC PC as the Project's Line Agency. After construction, UCCI will hand over the BRT system to DOT and DOT will manage and maintain the BRT.

37. HCMC Green Transport PMU: The PMU, established at UCCI, will be responsible for managing the implementation of all project components, including overall coordination, quality assurance, procurement, financial management, monitoring and reporting, and day-to-day supervision of project activities. The PMU will also obtain all site working permits for contractors. The PMU has some procurement experience in Bank procedures, as it has been involved with implementing the Project Preparation and Technical Assistance Fund (PPTAF)

¹⁶ The HCMC People's Committee is the executive arm of the city government. It has 13 members, including a Chairperson, six vice-chairs, and six other members. The legislative arm is the People's Council, which has 95 deputies. See: <http://www.eng.hochiminhcity.gov.vn/aboutgovernment/Lists/Posts/AllPosts.aspx?CategoryId=10>; and <https://asiafoundation.org/resources/pdfs/MunicipalGovernmentinVN.pdf>.

¹⁷ Established by UCCI based on Decision No. 2566/QĐ-BQLGTDT-VP, dated October 24, 2012.

subproject—that has partially financed the preparation of this Project—and is also implementing the IDF-financed Public Transport Authority Development Project.

38. Department of Transport (DOT): DOT will be responsible for reviewing detailed designs and technical specifications at the request of UCCI. The BRT system will be turned over from UCCI to DOT after construction and will be managed and maintained by DOT during operation. DOT, as the transport authority for HCMC, will also be responsible for the coordination and integration of the strategies, services, and fares of the bus, BRT, and rail systems.

39. Management and Operations Center for Public Transport (MOCPT): MOCPT, an agency within DOT responsible for managing and overseeing public transport in HCMC, has established (April 14, 2015) a dedicated BRT Business Management Unit within its organizational structure to manage planning and operations of the BRT.

40. BRT Operator: HCMC PC will select a capable operator. To operate properly the BRT system developed by HCMC GT, the operator will establish a BRT unit with specific requirements to assure sufficient capacity for effective BRT operations.

41. Traffic Police: The Traffic Police will participate in the detailed design stage of the BRT component, and be involved in the implementation of traffic re-organization and traffic signal priority for facilitating BRT operation. The Traffic Police will also enforce traffic laws in the BRT corridor, and further be involved in the acquisition and installation of all equipment related to traffic management.

42. Annex 3 provides more details on implementation arrangements.

B. Results Monitoring and Evaluation

43. The framework for Results Monitoring and Evaluation is shown in Annex 1. This framework was developed as part of project preparation and was discussed with the client to ensure understanding and agreement. This framework was designed specifically for the characteristics of the project through a series of studies, referenced in Annex 1. Currently, HCMC does not measure similar indicators and therefore the local capacity for measuring is low. As a result, the project includes a comprehensive monitoring and evaluation study under Component 2. A capable consultant will be hired to carry out the necessary measurements of the outcome and intermediate indicators. The responsibility for collecting the data in all cases rests with UCCI, which will be aided by this consultant. This arrangement, therefore, ensures that information will be collected with the specified frequency, allowing for proper monitoring by authorities in HCMC and by the Bank. PDO indicators will be measured once the Project enters into operation. The framework also contains a comprehensive list of intermediate indicators that track project implementation in detail. These intermediate indicators will be tracked semi-annually in the ISR.

C. Sustainability

44. The proposed project addresses the issue of sustainable urban development in three main ways: through improved urban mobility, greater financial sustainability of public transport, and reduced environmental impacts.

45. Improved urban mobility: The project would provide a viable alternative to using private vehicles, forming the core of a modern, integrated, and affordable public transport system, while increasing the public transport's share of all trips in HCMC (currently only 2 percent of all trips).

Selecting BRT rather than light or heavy rail modes for this transit corridor means lower capital investment and operating costs, as well as an earlier inauguration of services. Increased bus performance will maximize use of the existing street system, reduce congestion, and reduce vehicle operating costs. More efficient and attractive bus services will also help to make those operations more self-sufficient, reducing the need for government subsidies.

46. Financial and fiscal sustainability: Fare revenues of the current bus system in HCMC cover less than 60 percent of bus operators' total costs, requiring subsidies of some VND 841 billion (US\$40 million) annually in 2010, up from 40 billion VND in 2002, which places a severe strain on HCMC's municipal budget. The proposed BRT services would recover almost 80 percent of the operating costs from fares and advertising income in the base year, with ridership rising over time due to development anticipated along the corridor to levels where operations and maintenance costs will be fully covered by revenues. The project therefore will help reduce the need for subsidy, but will still need subsidies. Therefore, the project will ensure greater financial viability of services, while reducing the fiscal burden on municipal finances.

47. Environmental sustainability. CNG-powered buses will have a significantly smaller environmental footprint than existing public transport options in HCMC, while the shift from motorcycles and other private vehicles to public transport will help to substantially reduce road congestion, pollution, and accidents in the city, with large quantifiable economic benefits.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

Systematic Operations Risk- Rating Tool (SORT)	
Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Moderate
8. Stakeholders	Moderate
9. Other	
OVERALL	Substantial

B. Overall Risk Rating Explanation

48. The overall risk of the project is rated Substantial.

49. Political and governance risk. Vietnam continues to enjoy strong political stability. Preparations for the next Party Congress in 2016 have started. Key outcomes will be the adoption of the socio-economic orientations for 2016-2020 and the selection of a new leadership for the

Party. The next election of the National Assembly will take place in early 2016, followed by the selection of the new government. The transition is not expected to be destabilizing. However, there is a risk that generally decision making on key policy issues may be slow or deferred until after the change of government. For the proposed operation, the political and governance risk is substantial, including risks associated with the capacity and integrity of local governance, public financial management, procurement, state-society relations, and the potential for fraud and corruption. No political developments are anticipated that would impact the government's commitment to the project or the provision of counterpart financing.

50. Mitigation: For the proposed operation, transparency and cost effectiveness will be ensured through the Bank's competitive procurement process, along with focused project objectives and streamlined design. Bidding requirements and selection will be based on a market survey of BRT supply, reflecting the project's specialized nature, such as fuel technology. The Bank's standard Anti-Corruption Guidelines will apply, with PMU/UCCI staff and specialized technical and procurement consultants adhering to a strict Code of Conduct.

51. Macroeconomic risk. The main risks to the Bank program relate to policies that contribute to major macroeconomic imbalances and macroeconomic instability, which would prevent support through Development Policy Operations and other lending instruments. Such macro instability also risks reducing the impact of some of our support, and widening inequality. While macroeconomic policies are prudent overall and support stable macroeconomic conditions, there is need for renewed vigilance. Benign monetary conditions, including low inflation, are as much a product of a conducive external environment (in particular, low food and commodity prices and interest rates) and slow credit transmission by the domestic banking sector as they are of domestic monetary policy. Moreover, public debt levels, although still well within a sustainable range, have been rising fast in recent years on account of an expansionary fiscal stance that seeks to counter weak domestic private demand. Systemic risks also involve those from SOEs and the banking sector. For the proposed operation, the macroeconomic risk is considered "moderate", stemming mainly from the potential for slower growth and weaker government finances, which could result in lower ridership of the BRT system and less development along the BRT corridor.

52. Mitigation: A phased or incremental development approach will be built into the project's final design, so that the project's subsequent upgrading phases, such as purchasing more or larger vehicles, can be postponed if sufficient ridership is not attracted to the system.

53. Risk related to sector strategies and policies. The proposed project aligns with the city's focus on improving transport efficiency, safety, and environmental sustainability, while reducing the need for public subsidies and the burden this imposes on municipal finances. However, HCMC does not have a unified transport system integrating planning, modes, fares, and inter-institutional relationships. The city's Department of Transportation (DOT) and specifically its MOCPT unit regulate bus services in the city, with other agencies responsible for roles like managing traffic and enforcing transport regulations.

54. Mitigation: To ensure and integrate across agencies, in the long term a Public Transport Authority should be established. In the short-term, integration between bus and rail systems at the planning stage will be ensured by DOT and by HCMC PC, as mentioned in the institutional arrangements. The sharing of information and discussions, already begun under project preparation, will continue and be further intensified.

55. Technical design of the project. There is substantial risk that the project may not be implemented as originally conceived, either on time or within original cost estimates, leading to fewer benefits than projected.
56. Mitigation: Support for the project will be broadened and deepened by a communications program ensuring that stakeholders understand the project's benefits. Through training and other activities, capacity will be developed to ensure the project's timely implementation.
57. Risk related to institutional capacity for implementation and sustainability. The PMU has limited experience with BRT systems or with the Bank's social and environmental safeguards. This could result in project delays, in turn leading to traffic disruptions and public opposition. The project's financial sustainability could be affected if BRT ridership and operating revenues are lower than expected.
58. Mitigation: Possible opposition by competing institutions for the project will be addressed through focused communications, as well as capacity-building and training programs for the staffs of entities including UCCI, DOT, MOCPT, and the BRT operator. Financial sustainability risks will be mitigated by improving the BRT system's attractiveness and encouraging the modal shift from motorcycles through demand management and regulatory measures.
59. Fiduciary risks. The project's fiduciary risks are substantial due to inadequate financial management practices, a potential lack of transparency and accountability, the potential for fraud and corruption, and lack of overall capacity and implementation experience. This could create challenges with respect to procurement practices, contract awards, financial reporting, cost overruns, and delays in project implementation.
60. Mitigation: Training will be provided to the PMU, ensuring compliance with all Bank policies and guidelines. Bank support will be contingent upon sound financial reporting and oversight, as well as transparency in procurement and disbursement practices.
61. Environment and social risks: The project's construction activities and subsequent BRT operations will have some adverse environmental and social impacts, but they are likely to be small to moderate, short term, site-specific, and non-sensitive or irreversible. Combined with the PMU's lack of capacity and implementation experience, the result is moderate levels of risk.
62. Mitigation: The Bank has provided the PMU with technical support to ensure that the project Environmental Impact Assessment (EIA), Environmental Management Plan (EMP), Resettlement Policy Framework (RPF), and Resettlement Action Plan (RAP) are prepared on time and adhering to all Bank requirements. With additional training during project implementation, the PMU will assume responsibility for safeguards, and a system for environmental and social management will ensure that safeguard procedures being followed are in line with Bank policies. A communications program will build broader support for the project.
63. Stakeholder risks. Risks include the loss of the project's original political "champion," dissatisfaction due to the resettlement of directly affected residents, inter-agency coordination failures, and miscellaneous other institutional difficulties.
64. Mitigation: Support for the project among all stakeholders (officials as well as general citizens) will be built through a communications program, which will raise awareness of the project and its likely benefits. The staffs of all responsible agencies will receive training and take part in capacity-building activities.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

65. The project will contribute to Vietnam's development by increasing urban mobility in Ho Chi Minh City, reducing travel times and vehicle operating costs, minimizing environmental impacts, improving traffic safety, facilitating development along the BRT corridor, enhancing access to economic opportunities, and strengthening institutional capacity within the urban transport sector. Public-sector investment in the project is justified because of the large initial capital outlays (for physical infrastructure, vehicles, and institutional development), which cannot be recovered only through tariffs or ancillary revenues like advertising. The Bank's role is justified because of the value added it brings beyond project financing, including expertise and international experience related to institutional capacity building and transport planning, vehicle maintenance, ease of future inter-modal integration, procurement, financial management, environmental risk management, enhanced land-use planning and development, and expected benefits for vulnerable populations (women, youth, elderly, and persons with disabilities).

66. The client conducted a detailed cost-benefit analysis (CBA) for the project as part of the Feasibility Study. In addition, the Bank task team carried out an independent, in-house economic and financial analysis, presented in more detail in Annex 7, which yielded very comparable results. The main quantifiable economic benefits measured were time savings for passengers and other surface transport users, reductions in vehicle operating costs, and improved traffic safety. Additional benefits, such as lower transport-related local emissions, noise reduction, gender equity, and enhanced access to employment opportunities, could not be quantified with enough certainty and thus were not included in the economic analysis. The main costs measured are infrastructure investments required to support the BRT system (including BRT and ITS), traffic engineering, management and safety, land use improvements, operation and maintenance costs, and project management.

67. According to Bank staff estimates, the project's economic net present value (ENPV) is US\$120.6 million, at a 12 percent discount rate. Over a life of 20 years (16 years of operation), the project is expected to deliver an economic internal rate of return (EIRR) of 18.4 percent, and an economic benefit-cost ratio (EBCR) of 1.59. The project has a negative financial net present value (FNPV) of US\$190.4 million, meaning that the present value of its commercial costs exceeds the present value of its commercial benefits. Its financial benefit cost ratio (FBCR) is 0.07. Over the evaluation period, discounted revenues never surpass discounted costs, indicating that without subsidies the project may not be financially viable.

68. The main financial risk to the project is the possibility of lower than estimated passenger demand; the sensitivity analysis carried out by the client looked at the project's financial viability if demand would be 10, 20, or 50 percent below initial estimates, and it found that in those cases even higher subsidies may be needed to avoid financial losses by the BRT operator. However, these risks are lessened by design of the BRT system itself, as well as the fact that travel demand is an essential good. The assumed bus fare used in the calculations (6,000 VND for a 12 km trip) is the same as the current bus fare. Following standard practice for public transport projects, the project's financial analysis considered only operational costs and fares, as the investments costs in vehicles and infrastructure are not expected to be recovered from the fare box revenue.

B. Technical

69. The proposed project—a BRT that will run between An Lac in the southwest to Rach Chiec in HCMC—is part of the city’s Master Plan for Public Transport Development to 2025. The proposed BRT line will be the first to be developed in HCMC; the project is intended to demonstrate the benefits and potential of BRT, and its implementation should result in valuable lessons. The corridor lies on the Vo Van Kiet and Mai Chi Tho major arterial boulevards that have the space needed for an at-grade bus rapid transit system. Also, the pavement is in good condition, requiring less investment in civil works. As a demonstration project, the current project is expected to prepare the way for the remaining five BRT lines called for in the Master Plan. The Master Plan in general and the proposed project in particular are designed to put HCMC mobility on a sustainable path.

70. The Project was conceived and designed following extensive consultations with critical stakeholders from government to civil society to public transport users. The project’s design is the result of an extensive two-way consultation process that included household surveys and focus groups to understand the mobility needs of the potential users. As a result of the consultations, the project emphasizes the green aspects of the corridor, and the need was identified to have a design for the stations that suits the corridor (i.e., a “signature” design). The pre-feasibility and feasibility study reports¹⁸ incorporated these findings into the basic designs for the Project, which has been approved by the Government of Vietnam.

71. Other Bank funded operations have been instrumental to inform this project design. The VN-PPTAF (P118610) has a subproject for preparation of the HCMC Green Transport Development Project with studies that include the detailed design, and studies on environmental and social safeguards, among others. The IDF-financed Public Transport Authority Development Project (P144037) is financing studies on institutional issues critical to the Project.

72. The project’s design also follows typical BRT design by including segregated transitways, stations, and the use of information and communications technology, among others, to improve services. The segregated transitways allow buses to travel without conflicting with motorcycles and cars. Circulation speeds of buses are expected to increase to 23 kph by 2020. The stations will be located within the transitway environment to facilitate boarding and exiting the buses, which will reduce vehicle dwell time and thus overall journey times. Passengers will pay upon entering the station, which will allow them to board quickly, again reducing travel time. The Project also includes intersection design, traffic organization design, and traffic control approaches to be adopted when the BRT is operational. The traffic-actuated signal program would give priority to BRT vehicles while managing other traffic to minimize overall people delays. Reduced and more reliable journey times will make services more attractive and also reduce fleet operations costs.¹⁹

¹⁸ Integrated Transport Planning Ltd. 2014. “Ho Chi Minh BRT Technical Study.” Final report, pg. 3; and Consortium of Consultancy, Technology Development and Transport Construction– An Son Jsc–Center For Procurement Consultancy and Investment Support. 2014. HCMC Green Transport Development Project Feasibility Study Report, Final Report.

¹⁹ The initial service plan calls for starting BRT operations with one service: An Lac to Rach Chiec. As demand builds up, this plan calls for adding two more services: An Lac to Ben Thanh and Ben Thanh to Rach Chiec. Following the experience of Bank-financed BRT projects such as in Lima (P035740), Bogotá (P006872 and

73. The Project will also contribute to developing the concept of green transport in HCMC. First, the Project will lower emissions of local and global pollutants due to the improved efficiency of public transport. Second, the Project will make using public transport more attractive through better lighting, safer access to the stations, and improved walking infrastructure. Third, the landscaping envisioned by the Project will increase greenery along the corridor and its surrounding areas.

74. The Project will promote transit-oriented development (TOD). The promoted TOD is a result of the careful analysis as part of project preparation and also due to the availability of land for development, for example at Thu Thiem. The technical facility at Thu Thiem, moreover, will be adjacent to the proposed rail station and MRT Line 2 station, thus generating an integration node that will positively impact accessibility. This facility will also have office space and a daycare center for children of BRT drivers and others associated with project implementation and operation.

75. The Project will carry 24,700 passengers per day in 2019; 26,500 by 2020; and 28,300 by 2021. The share of trips in the corridor by public transport is expected to rise from 2.2% in 2013 to 3.8% in 2030.²⁰ Motorcycles are expected to continue to form the majority of trips, but some users of motorcycles, as well as car and taxi users, will choose the BRT. The share of public transport is higher in the with-project scenario (with the BRT corridor operating) than in the without-project scenario, showing that the BRT will become a viable option for traveling. The demand model does not contemplate major integration with other mass transit lines contemplated in the Master Plan. Component 2 of the Project, however, includes studies to improve the integration of the different mass transit lines. The demand model also shows that to significantly reduce motorcycle use, not only good public transport is needed, but also regulatory measures.

76. The Project is aligned with the Twin Goals of the World Bank Group as it will benefit public transport users, including the most vulnerable, who cannot afford or use a motorcycle or car. The project will specifically benefit very poor people who depend on public transport to access the job market. The project also lays the foundation for an integrated transit system, thanks to studies in Component 2, which will include the extensive transit network called for by the Master Plan. An integrated transit system minimizes overall costs, for example through integrated fares, and thus benefits all its users but the poor in particular. The project also benefits women in particular, who use public transport much more frequently than men and typically carry out multiple trips in a single outing, many related to children. The project design also includes universal access considerations, thus providing a much needed service for people with disabilities.

77. Higher quality and safer transport. The Project is a necessary step in a strategy to manage the city's large number of motorcycles and cars by demonstrating that improved public transport—thanks to exclusive right of way, well-designed stations, and better buses, among others—leads to faster, safer, and more reliable travel, and as such can become an alternative to motorcycles and cars. Although other steps, such as regulatory measures, are necessary to reduce

P074726) and Colombia (P082466), the final service plan is designed as construction of the transitways and stations is taking place. One reason is that the final station location is an essential element for the final service design.

²⁰ Consortium of Consultancy, Technology Development and Transport Construction– An Son Jsc–Center For Procurement Consultancy and Investment Support. 2014. HCMC Green Transport Development Project Feasibility Study Report, Final Report.

motorcycle use even further, one key step is to start building improved and more efficient public transport.

C. Financial Management

78. The assessment has concluded that the project meets the minimum Bank financial management requirements, as stipulated in BP/OP 10.00. The following key risks have been identified: (i) the PMU only has limited experience with World Bank-financed projects; and (ii) the PMU does not have an internal audit function, which means that internal controls may not be adequately designed and implemented to help the project achieve its objectives.

79. The main actions required to mitigate the identified risks are:

- a. FM Manual and training: An FM Manual, that is part of the Bank-approved Project Operational Manual, has been developed, and intensive FM training has been delivered to FM staff and other key project management personnel.
- b. Establishment of Internal Audit function: An Internal Audit Function will be established in the project within six months from the signing of the Financing Agreement.

D. Procurement

80. The project owner UCCI has established the HCMC Green Transport Development Project Management Unit (PMU) to manage the project implementation, including procurement. The agency has accumulated some (though limited) experience in World Bank procurement through implementation of the PPTAF subproject for preparation of the HCMC Green Transport Development Project and IDF-financed Public Transport Authority Development Project. The Bank's procurement procedures for international bidding packages are still a challenge to UCCI. While the project's day-to-day procurement-related operations will be the responsibility of UCCI and its PMU, the Project's procurement plan is subject to approval by HCMC PC.

81. The Bank carried out a procurement risk and implementation capacity assessment, rating the procurement risk as Substantial. With the mitigation measures being implemented, the procurement risk is reduced to Moderate. The main risks and the corresponding mitigation measures are discussed in Annex 3.

82. Procurement of the Bank-financed activities under the proposed project will be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods, Works and Non-Consulting Services Under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" dated January 2011 and revised July 2014 (the Procurement Guidelines); and "Guidelines: Selection and Employment of Consultants Under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" dated January 2011 and revised July 2014 (the Consultant Guidelines); and the specific provisions stipulated in the Financing Agreement. The Procurement Plan for the entire project as well as the procurement arrangements are discussed and presented in Annex 3.

E. Social (including Safeguards)

83. A Social Assessment (SA) was conducted to understand project impacts and inform project design. Specifically, the SA examined the project's potential impact—both positive and negative—on the basis of planned project activities; to inform the design of mitigation measures, address the identified potential adverse impact; and propose activities to enhance the project's development effectiveness, including those related to gender mainstreaming and behavior change

communication. The SA findings confirm that the project's overall social impact is positive. However, findings also indicate the project would result in some adverse social impacts because of the need for permanent acquisition of about 2.4 ha of land (most of it agricultural), of which 1.8 ha would be required in the Thu Thiem area (to build the technical facility) and an estimated 0.6 ha of land (agricultural and residential land) to build the BRT terminal in the Rach Chiec area in District 2. A total of 15 households are potentially affected at these two locations, of which 8 households are expected to resettle, 12 would lose more than 20% of their total productive land, and 6 would have their businesses affected. Two companies owning agricultural land at the technical facility location in Thu Thiem area would also be affected.

84. Some temporary land acquisition is also expected to take place during the construction of these two facilities, as well as at the BRT stations and access roads along the BRT route. The impact of these temporary land acquisitions is minor and will be avoided where possible through the use of appropriate construction measures. However, when such temporary impact is unavoidable, compensation will be made to affected households as per the project's Resettlement Policy Framework (RPF).

85. Involuntary Resettlement. The Bank's OP 4.12 (Involuntary Resettlement) is triggered due to unavoidable land acquisition, including potential permanent land acquisition to construct the technical facility and the terminal, and potential temporary and minor land acquisition impact during the construction of BRT stations and access roads.

86. RPF. An RPF was prepared in accordance with the World Bank's OP 4.12 to guide the preparation of a Resettlement Action Plan (RAP) for any site-specific civil works under the project that require land acquisition. The RPF specifies steps to be taken for the preparation, review, and clearance of a RAP required during project implementation. The RPF also specifies how compensation would be made to local people affected by loss of land, structures, crops, or businesses during project implementation, and describes how livelihood restoration of local people will be supported and monitored to assure its completeness and timeliness. The RPF was approved by HCMC PC on 26 of February 2015.

87. Abbreviated RAP. An abbreviated RAP (to support the construction of the technical facility in Thu Thiem) has been prepared to outline the resettlement process to be carried out for the permanent acquisition of about 1.8 ha (most of which is agricultural land). Three households and two private companies are affected, but physical resettlement is not required for the three local households. More consultations with affected households and companies will be conducted to inform detailed mitigation measures during detailed design.

88. Rach Chiec RAP. Given that the area (0.6 ha) and the location (Rach Chiec area, District 2) required for the construction of the BRT Terminal was recently approved by HCMC PC, a RAP will be prepared by UCCI. This RAP will be prepared in accordance with the RPF, and RAP implementation is scheduled for completion by June 2016, when construction of the BRT is expected to start.

89. Due diligence. The Vo Van Kiet Boulevard (which was built by the HCMC government) was selected as part of the BRT route. Because land acquisition for the widening and building of part of this highway was completed in 2007, due diligence has been done to determine: (i) whether land acquisition under this highway project was implemented in accordance with local laws, including relevant HCMC PC regulations at that time; and (ii) if the resettlement outcome meets the objective of the World Bank's OP 4.12. The results indicate that the land acquisition

was in compliance with the relevant laws and regulations at the time, and that the resettlement outcome meets the objective of the World Bank's OP 4.12. A minor pending issue is addressed in the abbreviated RAP which was accepted by the Bank.

90. The project is gender informed. The SAR was conducted in consultation with (i) households potentially affected as a result of land acquisition and (ii) current bus users, who are potential BRT users. For the households potentially affected as a result of land acquisition, additional consultation will be undertaken during detailed design to ensure that affected households are appropriately supported (from a gender perspective) to facilitate a prompt restoration of their livelihoods. For the potential BRT users, based on the consultations with current bus users and international good practices, the SA recommends that BRT buses and stations have dedicated areas to provide convenient access to and services for bus users with disabilities, the elderly, pregnant women, and school children. In addition, project activities involving Information, Education, and Communication (IEC) campaigns or trainings will all incorporate the gender perspective into the design and implementation of those IEC activities, to raise awareness and promote gender equality among the project's target beneficiary groups, as well as among the general public in Ho Chi Minh City. A survey will be done to assess users' satisfaction with the BRT service (with gender-disaggregated data). Considering these various actions, this project is gender informed on three dimensions, namely on gender consultation, having a gender action plan, and gender monitoring and evaluation. Gender mainstreaming was implemented during project preparation and will continue during project implementation. This is in line with the World Bank's Country Partnership Strategy for Vietnam (FY12-16), and EAP's target for gender informed projects for FY 15.

91. Social safeguards implementation. The HCMC PC is primarily responsible for the implementation of the RAP(s) to be carried out under this project, and the costs for compensation payments/livelihood restoration will be financed by the HCMC PC. During project implementation, UCCI, as assigned by HCMC PC, will do the day-to-day RAP implementation in collaboration with the relevant districts²¹ and other government agencies. A social staff will be appointed at UCCI to provide technical support to governmental agencies to ensure the RAP is implemented in accordance with the RPF. An independent land prices appraisal consultant and a social monitoring consultant will also be engaged by UCCI, to assist UCCI in ensuring the implementation of the compensation payment and resettlement support is carried out in accordance with the RPF.

92. Disclosure of social safeguards documents. All the agreed social safeguard documents, including the SA, RPF, abbreviated RAP (for the technical facility in the Thu Thiem area), and due diligence documents were disclosed in Vietnamese at the Vietnam Development Information Center in Hanoi on December 18, 2014 and locally at the offices of the project districts' PCs on January 23, 2015; the documents were also posted on the DOT's website on 23 January 2015. The English versions of the documents were disclosed at the World Bank InfoShop in Washington DC on December 17, 2014, prior to project appraisal. The final RPF (with minor revisions, accepted by Bank) was already re-disclosed at the Bank's InfoShop on March 5, 2015, and in Vietnamese at VDIC in Hanoi on March 9, 2015, and at project level on March 24, 2015.

²¹ HCMC city, like most cities in Vietnam, is divided into Districts. Their role is explained in the RPF.

F. Environment (including Safeguards)

93. The project triggers the Bank's environmental safeguards policy on Environmental Assessment (OP/BP 4.01) and has been assessed as a Category B project. The PMU has prepared an Environmental Impact Assessment (EIA) and an Environmental Management Plan (EMP) in accordance with the government environmental management regulations and World Bank safeguards policies. These safeguards instruments have been reviewed by the Bank and were found to be satisfactory.

94. Overall, the proposed project will bring about long-term environmental benefits and positive impacts to the lives of the people in Ho Chi Minh City; specifically, the project will reduce traffic safety risks and emissions from private vehicles. The city's urban landscape will also be improved by the "greening" investments provided by the project. The project will have some potential negative socio-environmental impacts under its Component 1; these are impacts associated with the rehabilitation and improvement of existing road infrastructure to support BRT operations, with the construction of BRT infrastructure, and with the construction of other non-motorized transport infrastructure to facilitate access to the BRT services.

95. The Environmental Impact Assessment (EIA) prepared by the client confirmed that the adverse environmental impacts are expected to result mainly from these various construction activities. Potential adverse impacts of the project during site preparation and construction include: (i) impacts related to land acquisition and resettlement for construction of the depot and terminal; (ii) noise, dust, vibration, and fumes from asphaltting and transportation of materials; (iii) disruption of traffic and access to roadside activities; (iv) interruption of local household businesses and utility services; (v) potential contamination of soil and water from disposal of waste materials and fueling equipment; and (vi) impacts on worker safety. Direct impacts from operations potentially include an increased noise and vibration level, domestic waste generation at bus stops and depots, traffic safety risks, air pollution from vehicle exhausts, and fuel and lubricant spills. No physical cultural resources are impacted by the project. The environmental impacts are likely to be small to moderate, short term, site-specific, reversible, and, in every case, mitigation measures can be designed to reduce the negative impacts.

96. Appropriate mitigation measures and environmental monitoring programs have been developed and are presented in the EMP. The EMP will be implemented through the civil works contracts for Component 1, supervised by the PMU and the construction supervision consultant. EMP implementation will be further supported by capacity building for the PMU and by using an independent environmental monitoring consultant and contractors.

97. During the preparation of the environmental safeguards documents, meaningful consultations have been conducted with relevant stakeholders for the specific EIA and EMP. Feedback from the consultations has been documented and was taken into account in the final safeguard documents and subproject designs.

98. Prior to appraisal, the draft EIA and EMP were disclosed locally in Vietnamese at the project sites (on October 27, 2014) and at the Vietnam Development Information Center; they were disclosed in English at the InfoShop in Washington, DC (on October 22, 2014). The final EIA and EMP were disclosed at the project sites on January 16, 2015, and at the InfoShop on February 3, 2015.

G. World Bank Grievance Redress

99. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaints to the WB's independent Inspection Panel, which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

Annex 1: Results Framework and Monitoring

Country: Vietnam

Project Name: Ho Chi Minh City Green Transport Development (P126507)

Results Framework

Project Development Objectives

PDO Statement

The project development objective is to improve the performance and efficiency of public transport along a high priority corridor in Ho Chi Minh City.

These results are at

Project Level

Project Development Objective Indicators

Indicator Name	Baseline	Cumulative Target Values					
		YR1	YR2	YR3	YR4	YR5	End Target
Number of passengers per day using the BRT system (Number)	0.00	0.00	0.00	0.00	24700.00	26500.00	28300.00
People satisfied with the service provided by Public Transport (Percentage)	33.00	0.00	0.00	0.00	33.00	42.00	50.00
Women satisfied with the service provided by Public Transport (Sub-Indicator) (Percentage - Sub-Type: Breakdown)	40.00	0.00	0.00	0.00	40.00	50.00	60.00
Low income riders satisfied with the service provided by Public Transport (Sub-Indicator)	25.00	0.00	0.00	0.00	33.00	42.00	50.00

(Percentage - Sub-Type: Breakdown)							
Travel time by public transport along the project corridor, measured as in-vehicle time from An Lac to Ky Con (14.1 km)	60.00	0.00	0.00	0.00	42.00	37.00	37.00
(Minutes)							
Number of workers and students accessing Thu Thiem Development within 45 minutes (Number)	1122000.00	1122000.00	1122000.00	1122000.00	1122000.00	1234000.00	1290000.00
Number of residents accessing Thu Thiem Development within 45 minutes. (Sub-Indicator) (Number - Sub-Type: Supplemental)	1050000.00	1050000.00	1050000.00	1050000.00	1050000.00	1156000.00	1208000.00
Difference in GHG emissions compared to BAU case (Tones/year)	0.00	0.00	0.00	0.00	-20000.00	-23000.00	-23000.00

Intermediate Results Indicators

Indicator Name	Baseline	Cumulative Target Values					
		YR1	YR2	YR3	YR4	YR5	End Target
Percentage of physical work completed as part of the civil works for the BRT transitway (Percentage)	0.00	0.00	5.00	30.00	70.00	100.00	100.00
Percentage of physical work completed as part of the civil works for BRT stations (Percentage)	0.00	0.00	5.00	20.00	80.00	100.00	100.00
Percentage of physical work completed as part of the civil works for constructing the Terminal at Rach Chiec (Percentage)	0.00	0.00	0.00	20.00	80.00	100.00	100.00
Percentage of physical work completed as part of the civil	0.00	0.00	0.00	20.00	80.00	100.00	100.00

works for constructing the Thu Thiem technical facility (Percentage)							
Number of buses acquired for the BRT system (Number)	0.00	0.00	0.00	0.00	28.00	28.00	28.00
Percentage of intersections with improved traffic and safety control (Percentage)	0.00	0.00	0.00	20.00	80.00	100.00	100.00
Percentage of sidewalk improvements completed along the BRT route (Percentage)	0.00	0.00	0.00	10.00	90.00	100.00	100.00
Percentage of improvements to station access within a 400- meter radius completed (Percentage)	0.00	0.00	0.00	10.00	90.00	100.00	100.00
Percentage of planned greening and landscaping activities along the corridor completed (Percentage)	0.00	0.00	0.00	10.00	90.00	100.00	100.00
Percentage of training courses delivered to the HCMC PC and its agencies (Percentage)	0.00	0.00	20.00	40.00	60.00	100.00	100.00
Number of studies completed under Component 2 of the project (Number)	0.00	0.00	0.00	2.00	3.00	3.00	3.00

Indicator Description

Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Number of passengers per day using the BRT system	Average number of daily passengers using the BRT system to be constructed under the project. Target values are to be measured one to two years into operations, so as to reflect ridership levels once operations are fully up and running, and have stabilized. The indicator measures the “improved performance of public transport” aspect of the PDO; as public transport performance (capacity and quality) improves, more people will use its services.	Bi-annual reporting based on more frequent observations (daily or weekly).	Regular boarding/alighting surveys, ticketing data. Baseline is zero as the BRT does not currently exist. It is important to note, however, that at present Route 39 (from Mien Tay to Ben Thanh) moves about 4,000 passengers per day.	UCCI
People satisfied with the service provided by Public Transport	Percentage of BRT passengers who are satisfied or very satisfied the public transport system. Target to be reached within the first 6-12 months after the start of BRT operations. The indicator measures the “improved performance of public transport” aspect of the PDO; as public transport performance improves, more people will express satisfaction with it.	Bi-annually	Public transport user surveys to be commissioned by the HCMC PC and transport agencies, and conducted bi-annually as part of the performance evaluation of the BRT system. The baseline has been established through user satisfaction questions as part of household survey (sample of 630) during project preparation. The baseline measures satisfaction with current public transport, as there is no BRT in HCMC. The expectation is that the BRT service will at least be as good as the existing baseline and will reach the	UCCI

			expected target. Focus groups can also be used to get a better understanding of user satisfaction, or lack thereof. The indicator takes a value of zero (0.00) during the implementation years to reflect that no measurement will be made during construction.	
Women satisfied with the service provided by Public Transport (Sub-Indicator)	Percentage of female BRT passengers who are satisfied with the services provided by the public transport system. Target to be reached within the first 6-12 months after the start of BRT operations. The indicator measures the “improved performance of public transport” aspect of the PDO; as public transport performance improves, more people will express satisfaction with it.	Bi-annually	Public transport user surveys to be commissioned by the HCMC PC and transport agencies and conducted bi-annually as part of the performance evaluation of the BRT system and of the conventional public transport routes that provide service along segments of the BRT corridor. Survey must ask the respondent’s gender. The baseline has been established through user satisfaction questions as part of a household survey (sample of 630) during project preparation. The baseline measures satisfaction by women with current public transport, as there is no BRT in HCMC. The expectation is that the BRT service will at least be as good as the existing baseline and will reach the expected target. Focus groups can also be used to get a better understanding of user satisfaction, or lack thereof. The indicator takes a value of zero (0.00) during the implementation years to reflect that no measurement will be made during construction.	UCCI
Low income riders satisfied with the service provided by Public Transport (Sub-Indicator)	Percentage of low-income BRT passengers who are satisfied with the services provided by the public transport system. Target to be	Bi-annually	Public transport user surveys to be commissioned by the City Government and transport agencies, and conducted annually as part of the performance evaluation of the BRT	UCCI

	reached within the first 6 to 12 months after start of operations of the BRT. Target to be reached one year into operations. The indicator measures the “improved performance of public transport” aspect of the PDO; as public transport performance improves, more people will express satisfaction.		system. Low income population is defined as people who earn less than 1 dollar a day. The baseline has been established through user satisfaction questions as part of a household survey (sample of 630) during preparation. The baseline measures satisfaction with current public transport, as there is no BRT in HCMC. The expectation is that the BRT service will at least be as good as the existing baseline and will reach the expected target. Focus groups can also be used to get a better understanding of user satisfaction, or lack thereof. The indicator takes a value of zero (0.00) during the implementation years to reflect that no measurement will be made during construction.	
Travel time by public transport along the project corridor, measured as in-vehicle time from An Lac to Ky Con (14.1 km)	Average zone-to-zone travel time, from An Lac to Ky Con (14.1km), by BRT along the project corridor during the morning peak hours, measured as in-vehicle travel time only. Indicator measures the “improved performance of public transport” aspect of the PDO; as public transport performance improves, it saves users’ time.	Bi-annually	Dispatching records from the GPS with which each BRT vehicle is equipped for operating speed and headway of buses. The expected speed with the project is around 22.8 kph. The baseline comes from the current average speed for Bus route 39, measured for the Feasibility Study “Ho Chi Minh City BRT Technical Study: Monitoring & Evaluation Baseline Report”, July 2014, World Bank, Table 2-1. This report compares scenarios without the BRT, and with the project in the future (2020): without BRT (existing public transport) the in-vehicle travel time for the same trip is 60 minutes, with BRT it is 37 minutes (the target number). The without BRT scenario is defined as the existing bus route #39, which is estimated to have a speed of 14.1 kph during	UCCI

			the morning peak in 2020. The baseline calculation is therefore: $14.1\text{km (distance between An Lac and Ky Con)}/14.1\text{ kph} = 60$. The indicator takes a value of zero (0.00) during the implementation years to reflect that no measurement will be made during construction.	
Number of workers and students accessing Thu Thiem Development within 45 minutes	Public transport accessibility measured in terms of the number of workers and students who can access Thu Thiem Development by public transport, door-to-door, within 45 minutes. The indicator measures the “improved efficiency of public transport” part of the PDO: more efficient public transport allows users to reach more destinations per unit of time.	Once after the project is operational	The baseline and cumulative target values come from results of the transport model developed by Integrated Transport Planning Ltd., which are available in the project files. See also “Ho Chi Minh City BRT Technical Study: Monitoring & Evaluation Baseline Report”, July 2014, World Bank, Table 5-8. The baseline is estimated as the number of workers and students in the situation without BRT in the year 2019. The target is with BRT in the year 2020. Therefore the indicator captures the effect of the project. The indicator will be measured after the project is operational as that is when the impact on accessibility materializes. Accessibility was analyzed by GIS mapping of the number and location of workers (including students) and the public transport network, including the BRT project (routes, stops, frequencies, travel speeds and capacities). To calculate the indicator a suitable transport model is needed to estimate isochrones of travel time from Thu Thiem and calculate the number of workers and students within each isochrone. The analysis of the impact of the project comes from measuring the two sub-indicators on	UCCI

			accessibility, namely this one and the sub-indicator on accessibility by residents.	
Number of residents accessing Thu Thiem Development within 45 minutes. (Sub-Indicator)	Public transport accessibility measured in terms of number of residents who can access Thu Thiem Development from their homes by public transport, door-to-door, within 45 minutes. The indicator measures the “improved efficiency of public transport” part of the PDO: more efficient public transport allows users to reach more destinations per unit of time.	Once after the project is operational	The baseline and cumulative target values come from results of the transport model developed by Integrated Transport Planning Ltd., which are available in the project files. See also “Ho Chi Minh City BRT Technical Study: Monitoring & Evaluation Baseline Report”, July 2014, World Bank, Table 5-8. The baseline is estimated as the number of residents in the situation without BRT in the year 2019. The target is with BRT in the year 2020. Therefore the indicator captures the effect of the project. The indicator will be measured after the project is operational as that is when the impact on accessibility materializes. Accessibility was analyzed by GIS mapping of the number and location of residents and the public transport network, including the BRT project (routes, stops, frequencies, travel speeds and capacities). To calculate the indicator a suitable transport model is needed to estimate isochrones of travel time from Thu Thiem and calculate the number of people (residents) within each isochrone. The analysis of the impact of the project comes from measuring the two sub-indicators on accessibility, namely this one and the sub-indicator on accessibility by workers and students.	UCCI
Difference in GHG emissions compared to BAU case	GHG emissions measured based on the number of Vehicle Kilometers traveled, by vehicle class and unit	Annually	Estimation of GHG emissions by buses using the BRT corridor, and comparison against the BAU case. The methodology will be the same	UCCI

	emissions. Indicator measures the “improved efficiency of public transport” part of the PDO: More efficient public transport has lower global emissions, as relatively fewer buses are used to move a higher number passengers.		as used to estimate the baseline, which can be found in the project files "Technical Note 5: Greenhouse Gas Emission Impact Appraisal Methodology". The current level of emissions is 862,000 ton/year.	
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Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Percentage of physical work completed as part of the civil works for the BRT transitway	Measures the progress in civil works for the BRT transitway.	Quarterly	Reports by contractor, validated by supervision consultant, on progress of civil works. 23 km of Transitway will be built.	UCCI
Percentage of physical work completed as part of the civil works for BRT stations	Measures the progress in civil works for the BRT stations.	Quarterly	Reports by contractor, validated by supervision consultant, on progress of civil works. 28 BRT stations will be built.	UCCI
Percentage of physical work completed as part of the civil works for constructing the Terminal at Rach Chiec	Measures the progress in civil works for the terminal.	Quarterly	Reports by contractor, validated by supervision consultant, on progress of civil works. One terminal will be built for the BRT.	UCCI
Percentage of physical work completed as part of the civil works for constructing the Thu Thiem technical facility	Measures the progress in civil works for the technical facility.	Quarterly	Reports by contractor, validated by supervision consultant, on progress of civil works. One technical facility will be built for the BRT.	UCCI
Number of buses acquired	The number of buses that have been	Annually	Physical progress of project implementation	UCCI

for the BRT system	purchased or leased for the BRT system, which meet the technical standards required by the detailed design			
Percentage of intersections with improved traffic and safety control	Measures the percentage of intersections along the project corridor improved with reconfigured traffic control to accommodate BRT traffic, advanced traffic controller (adaptive system, public transport prioritization), and automatic safety enforcement features (cameras, e-police)	Bi-annually	Reports by contractor, validated by supervision consultant, on progress of civil works. 22 intersections will be improved by the Project.	UCCI
Percentage of sidewalk improvements completed along the BRT route	Measures the progress in civil works for sidewalk improvements along the BRT route.	Quarterly	Reports by contractor, validated by supervision consultant, on progress of civil works. Target quantity will be established by detailed design study. This will be the base for measuring the percentage.	UCCI
Percentage of improvements to station access within a 400-meter radius completed	Measures the progress in civil works for improvements in access within a 400-meter access radius around stations.	Quarterly	Reports by contractor, validated by supervision consultant, on progress of civil works. Target quantity will be established by detailed design study. This will be the base for measuring the percentage.	UCCI
Percentage of planned greening and landscaping activities along the corridor completed	Measures the progress in civil works for the greening and landscaping of the corridor	Bi-annually	Reports by contractor, validated by supervision consultant, on progress of civil works. Target quantity will be established by detailed design study. This will be the base for measuring the percentage.	UCCI
Percentage of training courses delivered to the HCMC PC and its agencies	Measures the progress made in delivering training courses for the UCCI, MOCPT, the DOT and other relevant government agencies in	Bi-annually	The final target of total number of trainings programs to be delivered will be established by the Implementation Support Consultant.	UCCI

	project management, urban transport planning, public transport operation, and policy impact assessment			
Number of studies completed under Component 2 of the project	Tracks the completion of the three studies envisioned under Component 2 of the project.	Annually	Studies completed under Component 2. There were no such studies previously, so the base for measuring the number of studies is 0.	UCCI

Annex 2: Detailed Project Description

VIETNAM: Ho Chi Minh City Green Transport Development Project

1. *Concept.* The Green Transport Development Project builds on the findings of a design workshop in July 2011 organized by PADDI²² with the objective to develop, through a participatory process, an integrated urban street/land scape and transport concept along the Vo Van Kiet Boulevard. This concept incorporated the city's plans for a Bus Rapid Transit system (replacing a formerly proposed tramway) with a focus on:

- (a) Connecting BRT stations to a network of green public gathering spaces;
- (b) Installing ecological rain water collection and water treatment systems for stations and transitway;
- (c) Designing/constructing BRT stations to serve as identity landmarks for the Boulevard; and
- (d) Introducing street and landscape improvements along the corridor, including planting additional trees and shrubs and adding attractive street furniture.

2. In addition, the Project was prepared using several Bank-related instruments. The VN-PPTAF (P118610) has a subproject for preparation of HCMC Green Transport Development Project with studies that include the detailed design, currently in the final stages of procurement, and studies on environmental and social safeguards, among others. The IDF-financed Public Transport Authority Development Project (P144037) is financing critical studies on institutional issue critical to the Project. These activities are managed by the PMU, which has acquired some experience with Bank procedures.

3. The Project is aligned with the *Master Plan for Public Transport Development in Ho Chi Minh City to 2025*, which seeks to raise the capacity of the public transport system to meet 25-30% of the total travel demand in the city, encouraging the use of public transport, reducing motor vehicle use, and improving traffic safety.²³ The plan calls for a hierarchical approach in which seven metro lines, three tramway lines, six Bus Rapid Transit (BRT) lines, and 212 bus lines together constitute an integrated transit system. The Master Plan seeks to increase the supply and quality of public transport while regulating motorcycle use by enacting and enforcing regulations to make motorcycle use safer but less convenient, for example by regulating parking and the use of helmets and safety vests.²⁴

4. The project is the city's first BRT line, a green-corridor demonstration project between An Lac in the southwest and Rach Chiec in the northeast, running along the Vo Van Kiet and

²² The Ho Chi Minh City Urban Development Management Support Centre (Centre de Prospective et d'Études Urbaines – PADDI; Trung tâm Dự báo và Nghiên cứu đô thị) is a decentralized cooperation project between France's Rhône-Alpes Region and the Vietnamese Province of Hồ Chí Minh City: <http://www.paddi.vn/en/panorama-61/about-us/historical-background> .

²³ The Master Plan aims at having the seven metro and three tramway lines supply 3.81 million trips per day; the BRT network will supply 1.6 million trips per day, and the conventional network will provide 1.8 million trips per day (Integrated Transport Planning Ltd. 2014. "Ho Chi Minh BRT Technical Study." Final report, pg. 3).

²⁴ See Economic and Policy Services Pty Ltd. 2014. "Motorization and Urbanization in East Asia: Motorcycle, Motor Scooter & Motorbike Ownership & Use in Hanoi." World Bank Group and Australian Aid, section 3.1.

Mai Chi Tho major arterial boulevards. The project would involve a comprehensive, integrated package of roadway, public, and non-motorized transport strategies; investments; and land use policies in Ho Chi Minh City, Vietnam's largest city and economic capital, to improve the people-moving performance of its multi-modal transport system along a corridor with a potential for higher demand.

5. *Location.* The proposed BRT corridor is between An Lac in the southwest and Rach Chiec in the northeast, following the Vo Van Kiet and Mai Chi Tho Boulevards. The route between Highway 1 and the Saigon River is wide, with at least two lanes in each direction and additional motorcycle lanes provided along Vo Van Kiet between Cau Calmette and the junction with Highway 1a at An Lac. The route passes through low-density semi-industrial land to the west and immediately south of the traditional Chinese quarter of Cho Lon, before passing immediately south of the CBD of District 1. Between Cau Rach Cay in the west and the Saigon River tunnel, the route travels along the northern bank of the canal, effectively severing the route from activities on the south bank. Between the Saigon River and Rach Chiec Terminal lies the Mai Chi Tho Boulevard, which goes through the planned new financial and urban center of HCMC. The Boulevard cross-section is 100 m wide; it accommodates 12 motorized lanes, with lanes for motorcycles, as well as lanes for cars, trucks, and buses.

6. In the future, HCMC intends to extend the BRT line from An Lac to the new Mien Tay Bus Terminal. HCMC already has plans to develop this stretch and build a bus terminal; when completed, the BRT line will be extended.

7. The route between An Lac and Rach Chiec has been analyzed by the Ho Chi Minh City Department of Urban Planning and Architecture (DUPA) and by the Investment and Construction Authority for Thu Thiem New Urban Area. The proposed land use plan will see redevelopment of low-density development in Thu Thiem. The plans also reflect the ability of the BRT corridor to both induce and serve pedestrian and transit oriented compact development. The land use form, public realm, and public activities along the corridor were discussed at a multi-disciplinary workshop in February 2014 and will form the basis of guidelines for enhancing the relationship between transport provision and land development in this corridor as a demonstration of what is also possible elsewhere in Ho Chi Minh City. The workshop developed concept plans for the area in a radius of 800 m from four key corridor stations. The concept plans focused on built form, the movement of people and goods rather than vehicles, public realm/open space, the environment, and community development.

8. *Transit-oriented development.* A guiding principle to be applied to the development of the BRT stations and station precincts is the use of the investment in BRT to induce Transit-Oriented Development (TOD) in the vicinity of stations. The BRT will pass under the river in mixed traffic in the Thu Thiem tunnel, emerging through the toll gates and into the Thu Thiem (District 2) development area. Thu Thiem is currently sparsely developed, but high-density, mixed-use development with a new intercity railway station serving its core is planned to be completed in the near future. The railway station will also provide a terminus for the planned MRT Line 2. MRT Line 1, under construction, has a terminal at the northern end of the BRT line, at Rach Chiec. The MRT station will be elevated, and the BRT Terminal will be built close by. The two stations will be connected by a footbridge to facilitate physical integration. Urban regeneration already occurring between An Lac and Saigon River, along with the new development in Thu Thiem, is expected to result in significant growth in travel demand in the corridor from all modes.

9. *Physical design.* Based on the demand forecast, the physical design for the BRT for the early years of operation would be a single trunk route/service, to be increased as demand grows. Fare controlled “signature” stations will be designed with the transitway environment in mind to speed up access/egress from BRT vehicles; this in turn, will reduce vehicle dwell time and hence overall journey times. Reduced, more reliable journey times will make services more attractive and reduce operations costs. A station platform length of 30m is proposed to allow two bus bays to be available for BRT service. Standard station width will be at least 3m, a function of estimated peak demand, and will further take into account architectural design and physical constraints. While the BRT will start as a “closed” BRT, the goal for the medium to long term is to for the BRT to be an “open” system (see Annex 5).

10. *Rach Chiec terminal.* The terminal at Rach Chiec will be designed to support extended vehicle layovers for up to 50 percent of the vehicle fleet, providing: (i) facilities for buses to turn around for the return journey; (ii) space for vehicles to layover to maintain their assigned headway (“schedule recovery”); (iii) safe access for pedestrians; (iv) an information kiosk; and (v) a waiting area and support services. The space required would be around 0.58 ha.

11. *Thu Thiem technical facility.* The technical facility (depot) at Thu Thiem will include: (i) a control center building; (ii) overnight parking for the BRT vehicle fleet; (iii) a facility for washing and cleaning vehicles; (iv) a maintenance facility; (v) places for CNG re-fuelling and fuel storage; (vi) offices for UCCI and MOCPT, (vii) a daycare facility, and (viii) places for crew rest/welfare. The location of the depot is within the Thu Thiem development, adjacent to the proposed rail station and MRT Line 2 station within a commercially active center. This location requires sensitivity in design to enable the management of movements in and out of the depot without conflicting with surrounding land uses; it also requires careful management of night time maintenance activities as well as the management of environmental impacts from fuelling, washing, and maintenance. The total vehicle fleet size in 2030 is forecast to be 46 vehicles. Given the calculated fleet size, the space required would be around 1 ha plus 0.77 ha for the access road from the transitway.

12. *Transitway segregation.* Choices for the type of transitway segregation were made after considering drainage, flooding, and cleaning, as well as the need to exclude other vehicles from the BRT lane. Preliminary investigations have indicated that the inside lane, where the BRT will be located, is not prone to flooding, and, as such, the presence of fence style segregation barriers may not be needed to help drain water. In this case conventional curb style barriers are recommended with appropriate gaps to facilitate drainage; the barriers should be at a height that prevents entry from non-authorized users.

13. *Intersection management and control.* The project will finance intersection design, traffic organization design, and traffic control approaches to be adopted when the BRT is operational. The network contains 17 main intersections, of which 4 intersections are grade separated, 5 are four-leg, and 8 are three-leg intersections. BRT operations at main intersections along the route (where the BRT is forced to interact with other traffic) have been analyzed, and it was found that performance would be enhanced by a suitable, adaptive (reflecting instantaneous traffic conditions) signal program. When the BRT is operational, the traffic-actuated signal program would be supported to give priority to BRT vehicles whilst managing other traffic to minimize overall people delays.

14. *Bus fleet.* The project will finance at least 28 CNG buses. The selection of CNG fuel was based on an evaluation of various powertrain options (based on fuel type, emission standards, and hybrid technologies) with the main considerations being public health (reduced carbon monoxide, nitrogen oxides, non-methane hydrocarbons, and particulate matter emissions); climate change (reduced carbon dioxide and methane emissions); and point of pollution (on-vehicle and remote).

15. The operational implications of that choice were examined against:

- (a) Life cycle costs of vehicle technologies (capital and operating costs) including diesel hybrid electric buses, conventional ultra-low sulfur diesel (ULSD) buses, conventional diesel buses fuelled with B20 biodiesel, and CNG buses;
- (b) Environmental outcomes—emissions from different bus fuel technologies;
- (c) CNG supply from gas field to HCMC;
- (d) Health and safety issues; and
- (e) Operational implications of CNG fuelling as compared to ULSD.

16. Based on the overall evaluation, the decision is to procure CNG buses, which would use an indigenous fuel source for which there is significant government commitment.²⁵ Currently, 50 CNG buses are operating in HCMC on four routes by Saigon Bus, and another 50 CNG buses are operated by other bus cooperatives. The CNG initiative in HCMC has clearly been successful at the technical level. Fuel supply takes place at four stations and are run under an efficient and effective regime, and operators are positive about the trial itself and future investment. With significantly lower emissions of particulate matter (PM) compared to diesel buses, the reduced black smoke emissions and lower economic costs of CNG buses will help improve air quality and support green transport objectives.²⁶

17. *Facilities for vulnerable populations.* The BRT system is designed with specific features tailored to address the needs of women, children, and people with physical disabilities. Design features include having buses and stations at the same level, making it easier to board and exit buses, as well as load and unload strollers and other carriers. Stations will be wheelchair accessible and accessible for people with ambulatory disabilities, using low-slope ramps (with slopes under 8 percent per Bank guidelines).

18. Upgrades in sidewalks and walking infrastructure, paired with well-lit stations, will provide for safer access to and from public transport. Finally, the provision of well-organized public transport stations will reduce the conflict between vehicles and pedestrians, providing a safe environment for all users and women and children in particular. The guiding principle for designing accessible BRT, following Bank guidelines, is the objective to ensure accessibility for people with disabilities (*Bus Rapid Transit Accessibility Guidelines*, World Bank 2007).

²⁵ PC Decision number 4615/UBND-QLDA dated 11 September 2014 is on using CNG BRT vehicle and integrated BRT -conventional bus fare for this Project. The public transport integrated ticketing system (covering all public transport modes) will be studied under the project.

²⁶ The Bank-financed Metropolitano BRT in Lima (P035740) is an example of a BRT that uses CNG, articulated buses. This BRT moves over 700,000 trips per day using a fleet of 320 buses approximately. The Metropolitano is a BRT system with one of the world's highest numbers of passengers per km of operational line (approximately 25,000). CNG therefore has not lowered the efficiency of the BRT in Lima, a city also at sea level like HCMC. Source: www.protransporte.gob.pe.

19. The following two paragraphs provide a detailed description of the project components.
20. **Component 1: Bus Rapid Transit Corridor Development (Total Cost: US\$122.80 million, GoV: US\$12.45 million, IDA: US\$110.36 million):** This component will finance goods, works, and services for development of a BRT corridor between An Lac in the southwest and Rach Chiec in the northeast, following the Vo Van Kiet and Mai Chi Tho Boulevards (approximately 23 km and 28 stations). The investments will include:
- (a) Construction and supervision of BRT infrastructure and facilities. This includes:
 - (i) A dedicated and segregated bus transitway between An Lac and Rach Chiec including the upgrading and expansion of a road section from Lo Gom Bridge to Thu Thiem tunnel.
 - (ii) Median “signature” stations between An Lac and Rach Chiec, designed for the needs of the local users and fully accessible by people with disabilities. The design of the stations will consider the surrounding urban environment, will be tailored to the conditions of the corridor, and will take into account the need to interchange with other modes as needed.
 - (iii) A terminal at Rach Chiec and a turnaround area at An Lac.
 - (iv) A technical facility at Thu Thiem including a control center building, bus depot, office space for UCCI and MOCPT, rest facilities for crews, a daycare, parking areas for buses to accommodate the forecasted BRT vehicle fleet, and places for CNG re-fuelling and fuel storage.
 - (v) Reconstructed sidewalks around stations (which will remove the majority of current obstacles) combined with walkways to interchange points, thus contributing to a more accessible environment for pedestrians in Ho Chi Minh City.
 - (vi) New pedestrian-over bridges connecting stations to surrounding areas, including connections to the other side of the canal that runs parallel to the BRT corridor.
 - (vii) Parking for motorcycles at selected stations, and
 - (viii) Landscaping and open-space improvements along the corridor.
 - (b) Traffic management improvements, intersection control, and Intelligent Transport Systems (ITS). This includes:
 - (i) Reconfigured and revised intersection design and control between An Lac and Rach Chiec, including traffic signals giving priority to BRT vehicles and pedestrians.
 - (ii) Implementation of a broad range of ITS, including advanced traffic management systems (such as smart traffic signals, cameras, and e-police), advanced bus operation management systems (including global positioning systems, communication equipment, and dispatching), and a passenger information system.
 - (c) Fare collection system and smart cards. This includes fare collection facilities (e.g., electronic turnstiles) at each station, as well as sufficient smart cards and servers.
 - (d) BRT Vehicles. The project will finance at least 28 CNG buses.
 - (e) Planning integration and urban development. The objectives of this subcomponent would be to improve the environment surrounding the BRT stations; improve accessibility and amenities to maximize BRT effectiveness; provide universal

accessibility; and promote transit oriented development and greening of the corridor. Specific measures include:

- (i) Sidewalk improvements along the BRT route.
 - (ii) Improvements within a 400 meter access radius around the stations, along roads penetrating surrounding residential and commercial areas.
 - (iii) Greening of the corridor through urban design, street and landscaping.
 - (iv) Safety enhancement measures, including signage and barriers.
 - (v) Pedestrian facilities, including rest areas, information centers, and rest rooms.
- (f) Marketing and public communication. This includes the design and implementation of a comprehensive communications and outreach program (covering also grievance and redress mechanisms) for providing information to all stakeholders throughout the construction phases. These studies will include gender considerations.
- (g) Project management. This subcomponent will finance goods (office equipment, and vehicles) and services to support project management, annual audits, and supervision/monitoring support for environmental and resettlement activities.
- (h) Land acquisition and resettlement. The total cost of land acquisition and resettlement will be financed by the Socialist Republic of Vietnam.

21. Component 2: Institutional Strengthening (Total Cost: US\$5.00 million, IDA: US\$5.00): Implementation of the BRT introduces a new mode of transport to Ho Chi Minh City; it marks the beginning of a new era of multi-modal urban passenger transport in which a number of MRT lines will commence operation and more BRT lines are expected. This change will require institutional strengthening: first of the existing institutions and later of an overall passenger transport authority. It will also require the knowledge and capacity to restructure and integrate the network, transport services, and customer services when BRT and MRT lines are introduced. Component 2 will finance the goods and services to support:

- (a) Equipment, vehicles, office facilities upgrading, and other operational support for managing the implementation of the BRT and related measures by the PMU throughout the design, construction, and implementation phases;
- (b) Monitoring and evaluation. This subcomponent intends to assess whether the BRT has been successfully implemented as designed, whether it is really achieving the desired impacts, what post-implementation adjustments are required (if any), and what policy and design lessons might be derived from the project. Annual monitoring surveys and analysis will be conducted during project implementation covering transport system supply, demand, and performance. Ongoing monitoring activities will include household interviews, assessment of real estate prices, and assessment of building permit applications, visual surveys, mystery traveler surveys, car journey time surveys, focus groups, satisfaction surveys, air/noise and emissions surveys, traffic counts, and accident data analysis. Particular attention will be paid to the attitudes and willingness of current motorcycle users to use BRT, to identify their potential for mode shift, factors of resistance, and critical features for the (re)design of BRT lines to achieve higher levels of mode shift.
- (c) Feasibility and design studies for: a) maximizing connectivity and ridership of BRT line 1, and b) continued development of the BRT Network. These studies will be in

- line with the Master Plan for Public Transport, including integration considerations with the bus network and the overall multimodal passenger transport network;
- (d) Study to develop the optimal fare structure and fare product range for the public transportation system (for implementation through the new ticketing system).

Annex 3: Implementation Arrangements

VIETNAM: Ho Chi Minh City Green Transport Development Project

(i) Project Institutional and Implementation Arrangements

1. Ho Chi Minh City People's Committee. The Ho Chi Minh City People's Committee (HCMC PC) is the Project's Line Agency responsible for overall project management, policy setting, and providing guidance on and oversight of project implementation. The HCMC PC will closely coordinate with all concerned agencies and with the World Bank to ensure transparency and responsiveness in implementing the Project in accordance with the Financing Agreement (FA), the Project Appraisal Document (PAD), the Project Operations Manual (POM) and related Bank policies and regulations, and in line with the legal framework of the Socialist Republic of Vietnam. HCMC PC will approve the project procurement plan, detailed designs, and cost estimates and further issue land acquisition/allocation decisions. HCMC PC will exercise these responsibilities with the support of the Department of Transport (DOT), the Urban-Civil Works Construction Investment Management Authority (UCCI), and other related city agencies, such as the Department of Urban Planning and Architecture (DUPA), the Department of Finance (DOF), the Department of Planning and Investment (DPI), the Department of Construction (DOC), the Management and Operations Center for Public Transport (MOCPT), Traffic Police, the Management Authority for Urban Railways (MAUR), and the Department of Natural Resources and Environment (DONRE), among others. HCMC PC will: (i) provide direction to the project and implementation agencies; (ii) coordinate among implementing agencies and stakeholders; (iii) monitor and review project implementation; and (iv) provide guidance on objectives, problems, resources and project planning.

2. UCCI. UCCI will be the project/investment owner, responsible for supervising project implementation by the HCMC GT PMU, as well as reviewing and appraising all submissions from the PMU. UCCI will also be responsible for the overall management of the project procurement plan and will sign all contracts for the project. However the Procurement Plan is subject to the approval of HCMC PC as the project's line agency. When construction is completed, UCCI will hand over the BRT system to DOT for DOT's management and maintenance.

3. HCMC GT Project Management Unit (PMU). The PMU²⁷ will manage the implementation of all project components. Its responsibilities will include overall coordination, quality assurance, procurement, financial management, monitoring and reporting, and day-to-day supervision of project activities. In addition, the PMU will obtain the necessary site working permissions for contractors. The HCMC GT PMU has some experience in Bank procedures as it has been involved with implementing the PPTAF subproject—that has partially financed the preparation of the HCMC Green Transport Development Project—and is also implementing the IDF-financed Public Transport Authority Development Project.

4. Department of Transportation (DOT). The responsibility of the DOT will be the review of the detailed design and technical specifications at the request of UCCI. The BRT system will be turned over from UCCI to DOT after construction, after which it will be maintained by DOT.

²⁷ Established by UCCI based on Decision No. 2566/QĐ-BQLGTDT-VP, dated October 24, 2012.

5. Management and Operations Center for Public Transport (MOCPT). The MOCPT within DOT is responsible for managing and overseeing public transport in HCMC, including: (i) the approval of bus routes proposed by operators; (ii) the management of bus terminals and stations; (iii) the monitoring of service quantity and quality; and (iv) management of subsidy programs, including payments to operators. MOCPT will establish a dedicated BRT Business Management Unit within its organizational structure to develop new, high-quality commercial and operational practice; this BRT Business Management Unit will plan and manage BRT operations and also establish the needed interfaces and agreements with other agencies responsible for infrastructure, traffic management, and enforcement to ensure adequate operation of the BRT.

6. BRT Operator. HCMC PC will select a capable operator for the BRT operation. To operate properly the BRT system developed by the Project, the capable operator will establish a BRT unit with specific requirements to ensure sufficient capacity for effective BRT operations.

7. Traffic Police. Traffic Police play a key role by managing traffic (including providing and operating traffic signals and control centers) and enforcing all transport regulations. Traffic Police will participate in the detailed design stage of the BRT component and also implement the planned traffic re-organization, traffic signal priority (for facilitating BRT operation), and traffic law enforcement in the BRT corridor. Traffic Police will be involved in the acquisition and installation of all equipment related to traffic management.

Other related city agencies/departments

8. Department of Planning and Investment (DPI). DPI will be responsible for reviewing and commenting on submissions related to procurement, project adjustment, and counterpart funds.

9. Department of Finance (DOF). DOF will be responsible for arranging counterpart funds and appraising compensation costs and the prices paid for resettlement housing.

10. Department of Urban Planning Architecture and Management (DUPA) and Department of Natural Resources and Environment (DONRE). DUPA and DONRE will ensure that the project is fully integrated with land-use developments along the corridor and that it contributes to broader urban development goals. Both departments will also coordinate the implementation of the urban planning related aspects of the Project during the detailed design phase.

11. Department of Internal Affairs. This department will be responsible for the procedures to eventually establish a Public Transport Authority (PTA) for the city.

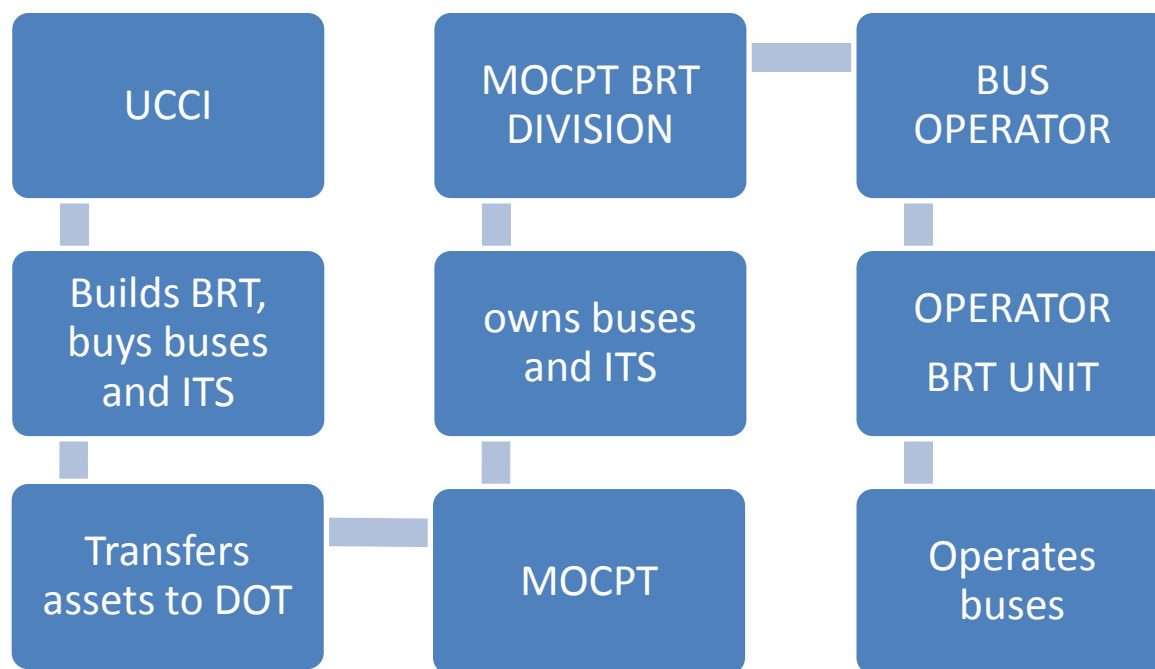
National Government Agencies

12. Ministry of Planning and Investment (MPI). At the national level, MPI provides overall guidance on investment policy and approves and monitors the progress of all large foreign-assisted projects.

13. Ministry of Finance (MOF). Represents the recipient of the credit (Socialist Republic of Vietnam) and on-lends on behalf of the recipient the credit proceeds to HCMC PC.

14. Ministry of Transport (MOT) and Ministry of Construction (MOC). MOF and MOC will ensure compliance with technical standards and specifications related to the BRT components.

Figure A3.1: Responsibilities and relation between UCCI, MOCPT, and BRT Operator.



15. *New arrangements.* Because the BRT will be a new form of transport for Ho Chi Minh City, new arrangements will be needed to support this mode of transport. Specifically, arrangements are needed to support a significantly higher level of operational performance and quality, involving a business model and financial structure significantly different from existing bus operations. To that end, MOCPT will need to develop the capacity to perform the role of BRT system manager, which will require three main strands of activity:

- (a) Establishing the BRT Business Management Unit within MOCPT.
- (b) Strengthening general institutional capacity within MOCPT.
- (c) Identifying and developing human resources to address specific BRT needs.

16. MOCPT will establish a dedicated BRT Business Management Unit within its organizational structure to develop new, high-quality commercial and operational practices. This BRT Business Management Unit will consist of four internal units: BRT Operations, BRT System and Infrastructure, Commercial Management, and Business Development. The BRT Business Management Unit will establish the needed interfaces and agreement with other agencies responsible for infrastructure, traffic management, and enforcement.

17. The BRT Business Management Unit will manage and develop the following key areas:

- (a) BRT infrastructure availability and maintenance
- (b) BRT support systems (both customer-facing and background)
- (c) BRT operations management
- (d) Contracts with BRT service provider(s)
- (e) Business model and financial management

- (f) Marketing and business development
 - (g) Interfacing with land-use planning and site-specific development agencies and companies.
18. For aspects such as BRT infrastructure and traffic management, primary responsibility and ownership rests with other agencies. The BRT Business Management Unit's task is to ensure that the necessary agreements, coordination arrangements, and daily management structures are in place.
19. MOCPT itself faces major organizational and capacity-development requirements for the broader urban bus network optimization, network expansion, introduction of new technologies, and the emerging multimodal context. Detailed staffing requirements have been identified based on a capacity assessment, and an intensive capacity-strengthening program has been developed for the next 6-24 months.
20. In the immediate term, MOCPT and the Management Authority for Urban Railways (MAUR) will focus on the effective development of their own respective modes; at the same time, however, they will already anticipate requirements for future integration and thus design accordingly. When the first MRT line opens in 2020, some service coordination and fare integration will exist, but the two modes (bus and MRT) will remain distinct. By building capacity within HCMC's existing institutions with responsibility in urban transport regulation, management, and operations, the project would pave the way for the eventual establishment of a unified citywide Public Transport Authority to coordinate strategy, services, and fares across all public transport modes.
21. *BRT operations.* The HCMC PC will choose a capable operator to operate BRT services along the project corridor on a pilot basis.
22. The operator will establish a separate BRT unit to manage BRT operations, incorporating enhanced quality procedures and business practices.
- (a) The contract will be on a gross cost basis—that is, the operator will be paid for the supply of the BRT services. For a defined period, all revenues will accrue to MOCPT.
 - (b) It will be a performance-based contract; payments will be adjusted according to performance above or below set targets.
 - (c) The contract will be seen as a demonstration project, and no rights are presumed for subsequent BRT corridors.

(ii) Financial Management

23. A “*Substantial*” FM risk rating was assigned to the project. The following key risks have been identified: (i) as the PMU has limited experience with World Bank-financed projects, its staff may not have sufficient relevant experience; and (ii) the internal audit function does not exist, thus internal controls may not be adequately designed and implemented to help the project achieve its objectives.

Required action	Timing
<u>Establishment of Internal Audit function:</u> Internal Audit Function will be established in the Project within six months from the signing of the Financing	<i>Six months after signing of the Financing Agreement.</i>

Agreement.	
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24. Budgeting and planning. The annual disbursement plan prepared by UCCI will be reviewed and approved by HCMC PC. Budgeting variances will be calculated and analyzed in the management reports (and progress reports) periodically prepared by UCCI and reviewed by HCMC PC management.

25. Accounting system and financial reporting. The current accounting system used at UCCI is the Accounting System for Investment Owner.²⁸ The accounting software is CIC Account, developed by Construction Informatics Company under the Ministry of Construction. CIC Account is considered to meet the Bank FM requirements. Semi-annually, UCCI will submit interim financial reports, following the AMT templates, to the Bank within 45 days after the end of each semester.

Internal control and internal audit:

26. *Internal controls:* Current internal controls procedures at UCCI are adequate for project financial management. The management of HCMC PC and UCCI will be responsible for ensuring that an adequate internal control framework and internal controls are in place and operating. The PMU also subscribes to the application and operation of the quality management system according to ISO 9001:2008.

27. *Internal audit:* The Internal Audit function will be in place for the project. An Internal Audit function (team) will be established within 6 months from the signing of the Financing Agreement. The team's capacity will be built through technical assistance funded by the Project, and the team will perform internal audits in accordance with TORs acceptable to the Bank.

28. *External audit.* The project financial statements will be audited on an annual basis in accordance with international auditing standards, with statements and audit reports to be submitted to IDA within six months of the close of each fiscal year. All audited financial statements are to be published according to the Bank's information disclosure policy.

(iii) Disbursement arrangements

Table A3.1: Allocation of IDA Credit Proceeds

Category	Amount of Credit (Expressed in US Dollars)	% of Expenditures to be Financed (inclusive of tax)
Goods, works, non-consulting services, consultants' services, training and workshops, and incremental operating costs	124,000,000	100%
TOTAL	<u>124,000,000</u>	

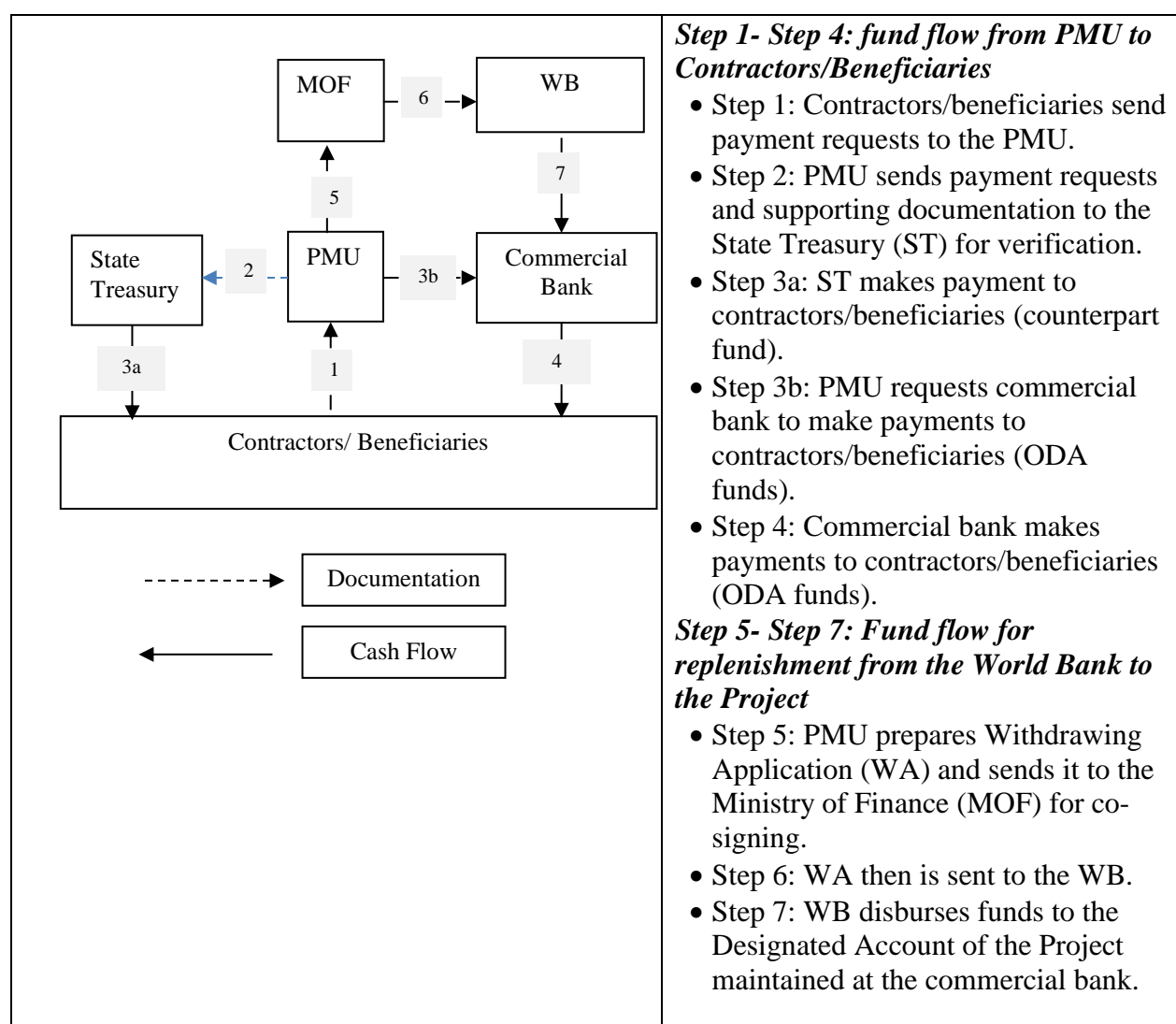
29. The project will use the following disbursement methods:

²⁸ Based on Ministry of Finance Decision No. 195/2012/TT-BTC, dated November 15, 2012, which became effective on January 1, 2013.

- (a) *Advance* - The Bank may advance credit proceeds into a designated account of the recipient to finance eligible expenditures as they are incurred, and for which supporting documents will be provided at a later date.
- (b) *Direct Payment* - The Bank may make payments, at the recipient's request, directly to a third party (e.g., supplier, contractor, or consultant) for eligible expenditures.
- (c) *Special Commitment* - The Bank may pay amounts to a financial institution for eligible expenditures covered by a special commitment, which is an irrevocable commitment entered into by the Bank in writing to pay such amounts. The financial institution shall provide confirmation that such expenditures have been incurred at the time a request for payment is made.

30. **Funds Flow.** The primary disbursement method will be Advance. A Designated Account (DA) held by UCCI will be opened to manage the funds from IDA. The DA will be denominated/opened in US dollars at a commercial bank under terms and conditions acceptable to the Bank. The ceiling of the DA will be provided in the Disbursement Letter.

Table A3.2: Fund flow from PMU to contractors



31. Supporting documentation. Supporting documentation, required for documenting eligible expenditures paid from the DA and for reimbursements, will be the Statement of Expenditure (SOE) and a list of payments against the contracts that are subject to the Bank’s prior review, together with records. The frequency for documenting expenditures paid from the DA will be quarterly. Applications for direct payments will be supported by records evidencing eligible expenditures (e.g., invoices). The minimum application size for reimbursement, special commitment, and direct payments will be specified in the disbursement letter.

32. The Project will have a disbursement deadline date (final date on which the Bank will accept applications for withdrawal from the recipient or documentation on the use of loan/credit/grant proceeds already advanced by the Bank) four months after the closing date. This “grace period” is granted to permit orderly project completion and closure of loan/credit/grant accounts via the submission of applications and supporting documentation for expenditures incurred on or before the closing date.

(iv) Procurement

33. Procurement implementation capacity and risk assessment. The project owner UCCI has established a PMU to manage the implementation of the proposed HCMC Green Transport Development Project, the PPTAF subproject financing the preparation of the HCMC Green Transport Development Project, and the IDF-financed Public Transport Authority Development Project. The Bank team conducted an assessment of the project's procurement implementation capacity and risks. This assessment has resulted in the following findings.

34. UCCI has experience implementing several JICA-funded projects (including the Sai Gon East-West Highway Project²⁹, the HCMC Water Environment Improvement Project phase 1 (both completed), and the ongoing HCMC Water Environment Improvement phase 2). In these projects, UCCI administered several large ICB civil works contracts (the largest contract value was about US\$331 million, awarded in 2005); the consulting services contracts were mainly selected by QBS procedures, with the largest consultancy contract value of about US\$79 million awarded in 2002. Recently, UCCI acquired experience in QCBS and successfully awarded a consultancy contract of approximately US\$24 million under the HCMC Water Environment Improvement phase 2.

35. Since 2013, UCCI has also been designated as the implementation agency for both the PPTAF-subproject as part of HCMC Green Transport project preparation and for the IDF on Public Transport Authority Development, financed by the Bank. Only a few contracts using the Bank's simple procurement methods have so far been awarded, while a large QCBS (quality and cost based selection) consultancy on detailed design for the proposed project is currently in the selection process. As a result, UCCI staff has limited knowledge and experience in procurement for WB-financed projects, especially large and complex international bidding packages.

36. In the implementation of prior projects, UCCI hired consultants to prepare the requests for proposals (RFPs)/bidding documents and also evaluate the proposals and bids. UCCI only appraised and approved the consultants' outputs. To successfully undertake procurement activities for the project, UCCI staff will now need technical support and capacity building for preparing the TORs, RFPs, and BDs, and for carrying out the proposals and bids evaluations.

37. UCCI staff have received a significant amount of training on the Bank's procurement policies and procedures, including hands-on and customized training sessions delivered by Bank teams to UCCI, intermediate and advanced procurement training workshops organized for the PMUs of Bank-financed projects in 2013 and 2014, and other training events organized by the PPTAF Project Central Unit of the Ministry of Planning and Investment (MPI).³⁰ In January 2015, UCCI attended the ADB/JICA/WB workshop on Strengthening Implementation of ODA funded Large Works Contracts in Vietnam.

38. The above assessment rated the overall procurement risk as **Substantial**, given the large amounts involved and the complex nature of project procurement. The main risks include:

- (a) Delays due to a time-consuming bidding process for large-value, complex contracts, including the preparation of TORs and technical specifications;

²⁹ This highway is renamed as Vo Van Kiet – Mai Chi Tho Boulevard.

³⁰ MPI is the implementing agency of the overall PPTAF (P118610) in Vietnam, which has a subproject that helped prepare the Project.

- (b) Delays due to weak capacity and insufficient experience of recipient staff in preparing procurement plans, preparing bidding documents, and conducting bid/proposal evaluations for complex, large works and consultancy contracts;
- (c) Inadequate contract management capacity of UCCI; and
- (d) Non-compliance with Bank procedures (including governance and corruption issues), which may occur at different levels during project implementation.

39. *Risk mitigation measures.* To mitigate the risks identified, several major mitigation measures have been agreed on with UCCI and are being/will be implemented, as summarized in the following table. Other relevant mitigation measures in the WB's Strategic Action Plan to Address Fraud and Corruption Risks in Vietnam will be incorporated into the Project Operations Manual and implemented as appropriate. It is expected that, after these measures are implemented, the residual risk will become **Moderate**.

Table A3.4: Risk mitigation measures, responsibilities, and timing

No.	Actions	Responsible	Expected Date of Completion
1	Responsibility and accountability for clearance and approval of procurement decisions will be fully delegated to the Project Owner level (UCCI).	HCMC PC/UCCI	HCMC PC as a line agency will hold the authority to approve the Procurement Plan, while other procurement clearance and approval authority under the Project has been delegated to UCCI.
2	<ul style="list-style-type: none"> - The PMU will always be adequately staffed with personnel experienced in public procurement in general and specifically with the Bank's procurement procedures. - Consulting Services on procurement support will be maintained throughout project implementation (this includes individual consultant(s); consulting firms for the preparation of designs, technical specifications, and bidding documents; and consulting firm for construction supervision and contract management). 	UCCI/PMU	<ul style="list-style-type: none"> - Currently, the PMU is staffed with three full-time procurement specialists with some experience in public procurement. Two individual consultants have been mobilized to support the procurement activities for preparation of the HCMC Green Transport Development Project. Additional qualified procurement officials will be employed during project implementation as needed. - Selection is currently underway for a consultancy firm for detailed design and procurement support using the PPTAF fund.
3	Procurement staff of PMU/UCCI and related	WB/UCCI/rel	Throughout project

	agencies will receive intensive training on the Bank's procurement procedures and contract management, including mitigation of fraud and corruption risks. Training programs would be provided by the Bank and other external sources. English training for PMU/UCCI staff is also found to be important and necessary, given the fact that many international competitive bidding packages would be awarded under the proposed project.	ated agencies (HCMC PC Departments)	preparation and implementation.
4	<ul style="list-style-type: none"> - Adequate, quality technical expertise (in-house and as external consultants) will be mobilized to prepare TORs and technical specifications as early as possible. - Given that BRT is new to Vietnam, UCCI will conduct a survey on market conditions and potential civil works and equipment suppliers, to design appropriate bidding requirements. - The project will procure CNG buses. The selection of CNG as the fuel for BRT buses contributes to the Project's green growth objectives and supports sustainable procurement. Through detailed design, the PMU will set relevant technical specifications and bid evaluation criteria related to this fuel technology. 	UCCI/PMU	Throughout project preparation and implementation.
5	Bid evaluators will be required to sign and commit to a Code of Conduct Declaration for carrying out their duties.	UCCI/PMU	Throughout project procurement implementation.
6	The procurement record-keeping system (covering important and valuable procurement documents) will be improved and properly maintained.	UCCI/PMU	Throughout project implementation.
7	PMU/UCCI staff will learn about project procurement management from other project implementing agencies (in HCMC and other provinces) with experience in the procurement for WB-financed projects or who are implementing similar projects. Examples include the PMU of the HCMC Environmental Sanitation Project and the PMUs of Da Nang and Hai Phong Municipalities.	UCCI/PMU	Throughout project preparation and implementation.
8	The Bank team will provide intensive, hands-on support and closely supervise procurement performance through prior and post reviews, implementation support missions, and capacity-building activities.	WB/UCCI	Throughout project preparation and implementation
9	Other relevant measures in the WB's Strategic	WB/UCCI	Throughout project

	Action Plan to Address Fraud and Corruption Risks in Vietnam ³¹ will be implemented as appropriate		preparation and implementation
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40. *Procurement Arrangements.* Procurement for the Bank financed contracts under the proposed project will be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods and Non-consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" dated January 2011, and revised July 2014 ("Procurement Guidelines"), and "Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" dated January 2011, and revised July 2014 ("Consultant Guidelines"). For procurement contracts to be financed by the IDA Credit, the procurement methods or consultant selection methods, estimated costs, prior review requirements, and timeframe shall be agreed upon by the PMU and the Bank in the Procurement Plan.

41. The procurement thresholds applicable to the proposed project are indicated in the table below. These thresholds may be subject to the Bank's review and modification throughout project implementation:

Table A3.5: Summary of Procurement Arrangements

Expenditure Category	Contract Value (US\$)	Procurement Method	Bank Prior Review (*)
Goods, IT systems, Non-consulting services	>= 3,000,000	ICB	All the ICB contracts
	< 3,000,000	NCB (**)	The first two contracts
	< 100,000	Shopping	None
	N/A	DC	All DC contracts (****)
Works / Supply & Installation	>= 20,000,000	ICB	All the ICB contracts
	< 20,000,000	NCB	The first contract regardless of value and all contracts >= US\$15,000,000
	< 200,000	Shopping	None
	N/A	DC	All DC contracts (****)
Consultant Services (***)	>= 300,000	QCBS, QBS, LCS	<ul style="list-style-type: none"> Firms: All contracts >= US\$500,000; plus the first contract for each method regardless of value; SSS contract >= US\$100,000 (****); Individuals: only in exceptional cases for competitive selection; SSS contract >= US\$50,000 (****).
	< 300,000	CQS	
	N/A	SSS	
	N/A	IC	

³¹ The Strategic Action Plan was dated October 1, 2014, which may be updated during its implementation in Vietnam.

Notes:	ICB – International Competitive Bidding NCB – National Competitive Bidding DC – Direct Contracting QCBS – Quality and Cost Based Selection QBS – Quality Based Selection	LCS – Least Cost Selection CQS – Selection Based on Consultants' Qualification SSS – Single (or Sole) Source Selection IC – Individual Consultant selection procedure N/A – Not Applicable
<p>* Contracts below these Prior Review thresholds shall be subject to Post Review on an annual basis as per procedures set forth in paragraph 5 of Appendix 1 of the Procurement Guidelines and Consultant Guidelines. The rate of post review will be initially 20 percent. This rate may be adjusted during project implementation based on the procurement performance of the project.</p> <p>**Where goods are not commonly available from within Vietnam, the method of procurement will be ICB even if the contract value is less than US\$3 million/contract.</p> <p>**The NCB procedures shall be those set forth in Vietnam's procurement laws and regulations, but subject to modifications, waivers, and exceptions as set forth in the "NCB Annex" to the Financing Agreement.</p> <p>*** Shortlists for contracts below US\$0.5 million/contract may comprise entirely of national consultants if there is adequate local capacity and sufficient number of qualified local firms. Other methods (QCBS, QBS, LCS) may also be applied for contracts below US\$0.3 million/contract.</p> <p>**** The Procurement Plan should indicate DC or SSS method with justifications</p> <p>***** Audit contracts are subject to prior review only if their values are above the threshold; however, the Bank's FMS will do prior technical review of TORs and shortlists, among others, of all audit contracts regardless of value.</p>		

42. *Procurement Plan.* UCCI has prepared a Procurement Plan for the entire project period. This Procurement Plan is subject to public disclosure and will be updated annually or as needed by including contracts previously awarded and to be procured. All procurement plans and their updates or modifications shall be subject to Bank's prior review and no-objection. The Bank shall arrange for the publication of the procurement plan and its updates on the Bank's external website.

(v) Environmental and Social (including safeguards)

43. *OP 4.01 Environmental Assessment.* Overall, the proposed project will bring about long-term environmental benefits and positive impacts to the lives of the people in Ho Chi Minh City, reduce traffic safety risks, and reduce emissions from private vehicles. The city's urban landscape will also be improved by the "greening" investments provided by the project. Some potential negative socio-environmental impacts of the project are associated with the rehabilitation and improvement of existing road infrastructure to support BRT operations, the construction of BRT infrastructure, and the construction of other non-motorized transport infrastructure to facilitate access to the BRT services under Component 1 of the project.

44. The Environmental Impact Assessment (EIA) prepared by the client confirmed that the adverse environmental impacts are expected to result mainly from the construction activities. Potential adverse impacts of the project during site preparation and construction include: i) impacts related to land acquisition and resettlement for construction of the depot and terminal; ii) noise, dust, vibration, and fumes from asphaltting and transportation of materials; iii) disruption of traffic and access to roadside activities; iv) interruption of local household businesses and utility services; v) potential contamination of soil and water from disposal of waste materials and fueling equipment; and vi) impacts on worker safety. Direct impacts from operation potentially include an increased noise and vibration level, domestic waste generation at bus stops and depots, traffic safety risks, air pollution from vehicle exhaust, and fuel and lubricants spills. No physical cultural resources are impacted by the project. The environmental impacts are likely to be small to moderate in size, short term, site-specific, non-sensitive or irreversible, and, in every case, mitigation measures can be designed to reduce the negative impacts. Therefore, the project is categorized as an Environmental Category B project.

45. Measures to address safeguards issues. The Government's regulations on EIA require preparation of an Environmental Impact Assessment for this investment project. Accordingly, an EIA was prepared and approved by HCMC Department of Environment and Natural Resources. An Environmental Management Plan (EMP) was also prepared, reviewed by the Bank and found satisfactory. The EMP details: i) all anticipated adverse environmental impacts; ii) the mitigation measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental impacts, or to reduce them to acceptable levels; iii) monitoring objectives and type of monitoring with linkages to the impacts assessed in the EIA report and the mitigation measures described in the EMP; iv) the actions needed, including institutional arrangements to implement these measures; v) capacity development and training to support timely and effective implementation of environmental project components and mitigation measures; vi) implementation schedule and cost estimates for implementing the EMP, and vii) integration of the EMP with the project.

46. The EMP also includes Environmental Codes of Practice (ECOPs) for addressing generic construction related impacts and a set of appropriate and site-specific mitigation measures, as well as procedures for managing chance finds. The EMP will be included in the bidding and contractual documents and implemented through the civil works for component 1. Implementation of the EMP will be monitored and supervised by the PMU, the construction supervision consultant, and the independent environmental monitoring consultant; EMP implementation will be further supported by capacity building for the PMU, supervision consultants, and contractors.

47. The project will be implemented on the existing Vo Van Kiet-Mai Chi Tho Boulevards, which were built under a project financed by the Japan International Cooperation Agency (JICA) and completed in 2011. Because of this the task team conducted an environmental due diligence. The EIA for the Vo Van Kiet-Mai Chi Tho Boulevards project was developed and approved by the Ministry of Science, Technology and Environment on 25 October 1999. The EIA report was developed to meet all the requirements of Vietnamese laws and social and environmental policies of JICA. Proper stakeholder consultations were conducted during EIA preparation, and the EIA was disclosed as required by the government regulation. Review of this project's environmental documentation indicates that the project owner fully complied with all environmental protection requirements of the Vietnamese government and JICA during the

project preparation, construction and operation phases. There are no outstanding environmental issues.

48. Component 2 of the project involves technical assistance (TA) for a prefeasibility analysis of additional BRT lines and/or other follow-up investments. Although the TA activities themselves do not have direct adverse environmental or social impacts, the outcomes of the TA support may have significant environmental and social implications going forward, entailing risks and potentially inducing adverse impacts. Therefore, implementation of these TA activities must comply with applicable Bank safeguards policies. The TAs will follow the *Interim Guidelines on the Application of Safeguard Policies to Technical Assistance (TA) Activities in Bank-Financed Projects and Trust Funds Administered by the Bank* and seek guidance from the Bank safeguards specialists early in the process.

49. The project PMU under UCCI will be responsible for monitoring overall project implementation, including environmental compliance. While the PMU will have the final responsibility for environmental performance of the project, the construction supervision consultant will take the lead in ensuring contractor compliance with the EMP. Specifically, the PMU will be responsible for overall supervising of the implementation of the EMP, reviewing project monitoring reports, implementing regular and ad hoc monitoring, and requesting further mitigation measures based on their own environmental management jurisdiction. A safeguard unit under PMU will be established with at least one environmental management staff to support the environmental management of the project. The PMU will also contract experienced independent environmental monitoring services for external monitoring of compliance with the EMP. The independent environmental monitoring consultant will carry out the environmental monitoring program as designed in the EMP and advice on additional monitoring of mitigation measures to be implemented by the contractors. The consultant will submit bi-annual monitoring reports to the PMU and the Bank.

50. Public consultation and disclosure. Public consultations on the project EIA and EMP were carried out during project preparation with the DOT, the Transport Police, the affected people, local authorities, and mass organizations. Feedback from the consultations has been taken into account in the preparation of the final documents and for the project's design. Prior to project appraisal, the draft EIA and EMP were disclosed in Vietnamese at the Vietnam Development Information Center, the PMU office, DONRE, and the project sites on October 27, 2014. They have also been disclosed in English at the World Bank InfoShop in Washington DC on October 22, 2014. The final EIA and EMP were disclosed at the project sites on January 16, 2015 and at the InfoShop on February 3, 2015. The final approved English version of the RPF has been re-disclosed on the Bank's Infoshop on March 5, 2015, and in Vietnamese at VDIC in Hanoi on March 9, 2015, and at project level on March 24, 2015.

51. Land acquisition/Resettlement: OP 4.12 (Involuntary Resettlement) was triggered because land acquisition will be required for the purpose of the civil works. A Resettlement Policy Framework (RPF) was prepared to guide the preparation of additional subproject RAP(s), in case they are needed during project implementation. The RPF was approved by HCMC PC on February 26, 2015. Based on the RFP, an abbreviated RAP was already prepared during project preparation for the construction of the Thu Thiem technical facility. A Social Assessment (SA), with gender analysis as an integral part, was carried out. The SA findings confirm the overall social impact of the project is positive. However, according to the SA, the project would result in some adverse social impacts due to the need for permanent acquisition of about 1.77 ha of land

(mostly agricultural land) to build the Technical Facility in the Thu Thiem area and about 0.58 ha (agricultural and residential land) to construct the BRT Terminal in the Rach Chiec area of District 2. Some temporary land acquisition is also envisaged during the construction of the technical facility, the BRT terminals, BRT stations, and the access roads along the BRT route. These temporary impacts, however, are anticipated to be minor.

52. Due diligence. The Vo Van Kiet – Mai Chi Tho Boulevard will be the main BRT route. Because land acquisition to widen and build part of this highway was completed in 2007, due diligence has been done to confirm: (i) if land acquisition under this highway project was implemented in accordance with local laws, including the HCMC PC's relevant regulations at the time; and (ii) if the resettlement outcome meets the objective of the World Bank's OP 4.12. Due diligence results indicate that the land acquisition was in compliance with the relevant local laws and regulations at the time and that the resettlement outcome meets the objective of the World Bank's OP 4.12. A minor pending issue, as identified in the due diligence, has been addressed/monitored for implementation in the abbreviated RAP.

53. Measures to address social safeguards issues. Permanent land acquisition (for the two areas listed) will be implemented by UCCI following the project's RPF and RAP(s). The impacts of temporary land acquisition, which are minor, will also be addressed by UCCI; the PMU will explore and implement appropriate construction measures to avoid impacts where possible and compensate for impacts that cannot be avoided. The costs for land acquisition will be financed fully by HCMC PC. During project implementation, UCCI will work closely with the Bank's Task Team to obtain necessary support to ensure the timely preparation, updating, and implementation of the RAPs.

54. Implementation of the RPF, the abbreviated RAP for the Thu Thiem technical facility, and any other RAP(s) prepared during project implementation (including implementation of the recommendation from the SA to address gender issues/gender mainstreaming), will be the responsibilities of the HCMC PC, with day-to-day RAP implementation and the development of new RAPs managed by UCCI, as delegated by the HCMC PC. UCCI is expected to coordinate with relevant governmental agencies as needed and ensure RAPs are implemented in accordance with the approved RPF and in a timely and appropriate manner to meet the agreed civil works construction plan. Moreover, UCCI is responsible for ensuring gender mainstreaming is done appropriately and timely, as suggested in the SA. Both RAP and gender mainstreaming will be monitored by an independent monitoring consultant engaged by UCCI.

55. Land area for the end-of-route terminal. On February 10, 2015, HCMC PC approved the area and location that had been suggested by UCCI for the terminal in Rach Chiec area in District 2; about 0.6 ha of land is required for the construction of this end-of-route BRT bus terminal. UCCI will prepare a RAP for this area in accordance with the Project's RPF. RAP implementation will be completed by June 2016, when construction is expected to start.

56. UCCI will appoint a social specialist to support and coordinate with relevant stakeholders, including with the Bank's Task Team. UCCI will ensure the social safeguards implementation and monitoring are expedited in full compliance with the project's RPF. An independent social monitoring consultant and an independent land price appraisal consultant will also be engaged by UCCI to carry out periodic monitoring to ensure RAPs are implemented in full compliance with the project's RPF, including compliance related to timely and appropriately addressing any grievance that may arise during the RAP implementation.

57. Gender mainstreaming. UCCI is requested to ensure that recommendations for bus design, bus servicing, and relevant communication activities under the project all take into account the gender perspective, ensuring that designs and communications accommodate the needs of all passengers (male and female), including school children and other young people, elderly, pregnant women, and people with disabilities. Bus design and services need to meet the special demand of these passenger in terms of safety, convenience, and accessibility. The key recommendations related to these groups of passengers are included in the Social Assessment.

58. Public consultation and disclosure. All required public consultation with potentially affected households (as a result of land acquisition), including those who potentially benefit from the BRT (as BRT users) have been consulted as part of the SA. Their feedback has been incorporated into the RPF, RAP, and the Feasibility Study. All the required social safeguard documents, including SA, RPF, abbreviated RAP (prepared for Thu Thiem technical facility), and social due diligence reports have already been disclosed in English at the World Bank InfoShop in Washington DC on December 17, 2014. The documents were also disclosed in Vietnamese at the Vietnam Development Information Center on December 18, 2014 and at the local project offices on January 23, 2015; they were also posted on the website of the DOT on January 23, 2015, prior to commencement of project appraisal. The final approved English version of the RPF was already re-disclosed on the Bank's InfoShop on March 5, 2015, and in Vietnamese at VDIC in Hanoi on March 9, 2015, and at project level on March 24, 2015.

(vi) Monitoring and Evaluation

59. When the BRT system is operational, routine data relating to passenger numbers and fleet performance will be collected, collated, and reported by the BRT Business Management Unit. In addition, a project monitoring and evaluation methodology has been developed (see Annex 1). This annual activity will provide information that will be used to track key performance indicators and evaluate progress toward achieving the PDO. Ex-ante data were collected as part of project preparation, providing a baseline from which project impacts can be assessed.

60. The data collected consist of both qualitative and quantitative measures to support defined key performance indicators. These data will be collected annually commencing in the first year of operation (ex post), to be compared with collected ex-ante data sets or with the Business as Usual scenario in the case of GHG. The methods of collection will include user questionnaires and surveys, as well as traffic and movement data, and other public transport and traffic performance data, collected through a variety of methods (see Annex 1).

61. Data collection and monitoring will initially be undertaken and coordinated by the PMU, after which it will be taken over by the BRT Business Management Unit within the MOCPT. The need to monitor and evaluate will be specified in the functions of both units.

62. The survey protocol including forms and analysis methodology has been specified as part of project preparation. The protocol extends local knowledge of basic data collection to incorporate that of system impact analysis. The capacity of the PMU/BRT Business Management Unit in monitoring and evaluation of project activities will be strengthened.

63. *Monitoring* will include tracking inputs, activities, outputs, outcomes, and other aspects of the project on an ongoing basis during the implementation period, as an integral part of the project management function. *Evaluations* will be conducted at regular intervals (mid-year, annually, mid-point, and upon completion) to assess project impacts and performance. The

project will finance monitoring and evaluation of project components on a regular basis. The costs assume that external support will be required, including the cost of data collection, collation, and analysis/evaluation.

64. While measures will be put in place to minimize adverse effects, project implementation will involve some disruption to all road users along the BRT corridor. This disruption will be manifested in increased journey times, limited accessibility, and noise. The effects will be felt by those living and working within the corridor and roads accessing the corridor, as well as by those living and working on routes used as alternatives to the BRT corridor. In addition, there will be effects on businesses that rely on the corridor for access. During construction, these effects will be monitored using qualitative surveys of users and affected parties, quantitative data on vehicle movement, and journey time surveys.

65. During implementation, the following tools and approaches will be used:

- (a) Crowd sourcing as a monitoring tool. During implementation, studies would be conducted to assess the possible use of smartphone applications in buses to increase the amount of knowledge of transport network performance and provide an automated data analysis and display tool. This approach could greatly enhance network knowledge and lead to better management of the network by system managers and network users. The web-based tools would include visualization and analysis tools displaying live and time-series databases of bus operations in the city. In addition to tools for traffic speed, journey time, and congestion comparisons, transport network performance tools would also be included so that the traffic control center could develop and use a live map showing traffic accidents and intersections where they need to deploy traffic enforcers.
- (b) Civic engagement platform. Establishment of a civic engagement platform improves the public's participation in transport network management issues. Focus group discussions with local residents identified the adoption of text-based fault reporting as the best means of communication.
- (c) SMS text fault reporting system. An SMS text fault reporting system would be established during project implementation to include fields for specific BRT issues (such as service delays, cleanliness of vehicles, faults at stops and stations, driver behavior, and ticketing problems), along with weekly themed "crowd voting" surveys (for example about ticket prices, service quality, and operating hours). The latter would be tied into the longer-term marketing, communications, and branding of the BRT, since the SMS text responses from service users will provide insight into whether the BRT system is meeting passenger expectations.

(vii) Role of Partners (if applicable)

Annex 4: Implementation Support Plan

VIETNAM: Ho Chi Minh City Green Transport Development Project

Strategy and approach for the Implementation Support

I. Project implementation strategy

1. Given both the complexity of implementing a BRT project and the implementation problems of the first BRT pilot in Hanoi, the overall project design risk is rated substantial. Efforts have been made during project preparation to manage this risk, and this will continued during project implementation. The basic approach for implementation support has four dimensions:

- (a) Strengthening the capacity of UCCI as the PMU. Technical assistance to support project implementation will be mobilized under Component 2. This includes the use of sizable TAs to involve external technical and financial auditors, independent safeguards monitoring, an internal auditor, and international consultants supporting bid evaluation and construction supervision. Also included are multiple training courses on World Bank procedures.
- (b) Setting up a basis for inter-agency coordination. To ensure integration between bus and rail based systems and strengthen coordination among the many agencies in transport, urban, and environment sectors, the HCMC PC will provide close monitoring and rapid responses to key project development issues, thus facilitating more prompt project delivery.
- (c) Strengthening the capacity of DOT and MOCPT, in particular for the planning and management of BRT, and ensuring overall integration of the BRT system with the bus transport network. Key aspects of the planned approach include:
 - (i) The BRT will be implemented within the existing institutional framework of DOT and MOCPT.
 - (ii) MOCPT will be the assigned agency for the management of the BRT.
 - (iii) The BRT will be implemented as a “bus,” and thus will be a “mode within a mode.” This will allow the BRT to take advantage of all existing regulations and processes (with adaptations as necessary).
 - (iv) MOCPT will establish a BRT Business Management Unit within its organizational structure. The unit will allow for a distinct and high-quality commercial and operational character for the BRT, while retaining the advantages and support of the MOCPT organization.
 - (v) The BRT Business Management Unit will consist of four internal units: BRT Operations; BRT System and Infrastructure; Commercial Management; and Business Development.
 - (vi) The BRT Business Management Unit will establish the needed interfaces and agreements with other agencies responsible for infrastructure, traffic management, and enforcement.
 - (vii) Considering the high level of staffing for the BRT system (mostly station staff) relative to the service provided and forecast ridership, a significant focus of the BRT Business Management Unit will be to develop ridership both through marketing and interaction with land development activities.

- (viii) The BRT Business Management Unit will be responsible for developing the business and operational processes for the BRT. The unit will be the “end user counterpart” throughout the detailed engineering design and construction phases; the unit will work closely with UCCI.
 - (ix) A capacity development and support program will be put in place for the BRT Business Management Unit.
 - (x) The BRT Business Management Unit will hire additional staff during 2017-18 when the BRT reaches operational readiness and service launch.
- (d) Strengthening the capacity of the bus operator. The HCMC PC will choose a capable operator for BRT buses. During implementation, technical assistance will be provided to:
- (i) Strengthen the technical and financial capacity to procure all buses required for BRT operations in coordination with the PMU, which is responsible for procurement.
 - (ii) Achieve the required maintenance capacity for the BRT buses, including the technical facilities, equipment, maintenance procedures, and quality control systems.
 - (iii) Support the implementation of fare collection, ITS, and back-office systems specified by MOCPT.
 - (iv) Establish service quality processes required for BRT.
 - (v) Establish customer care processes required for BRT.
 - (vi) Strengthen the technical capacity of the separate business management unit for BRT within the operator.

II. Task Team Project Implementation and Supervision Approach

2. The Implementation and Supervision Support Approach highlights the Bank’s support to implement the risks mitigation measures identified in the Project SORT. Close project implementation support and supervision will be undertaken by a multi-disciplinary team consisting of safeguards, fiduciary, and technical specialists based at the Washington and Hanoi offices. Most of the team members have been involved in the preparation and supervision of the Hanoi and Da Nang BRT projects. Project supervision will focus on anticipating issues and preparing realistic action plans. The Bank’s implementation support plan consists of scheduled full supervision missions every three to four months, as well as short review missions focusing on problem solving and timely follow-up and monitoring as necessary. Between missions, close communications and rapid follow-up to issues will be maintained. A Mid-Term Review conducted after 24 to 30 months of implementation will be used to identify and implement any structural changes. Technical expertise will be maintained throughout project implementation and increased as needed during critical implementation periods to review and provide recommendations. Selection of a consulting firm to prepare the BRT detailed design and to stay on as long term advisor to DOT/MOCPT will help reduce design and implementation risks, including making sure a public transport supporting policy is in place. Delivery risk would be significantly reduced through clear and timely articulation of World Bank compliant procedures and the implementation of such procedures.

3. Table A4.1 lists the technical inputs that will be required for the project, with inputs changing as the project moves from design through procurement to implementation.

Table A4.1: Project Implementation Support Plan

Focus	Skills Needed	Resource Estimate (Staff-weeks/year)
Team leadership	Transport specialist	8
Technical review—design, contract documentation, procurement, and construction	Highway engineer Traffic engineer	8
BRT planning, operations and management	BRT specialist, planning	12
Land use integration	Urban planner	8
Institutional oversight—TA and capacity building activities	Institutional specialist	8
Land acquisition and resettlement compensation monitoring	Resettlement specialist	3
Environmental monitoring	Environmental specialist	2
Review of procurement documents, training, and hands-on advice and guidance on procurement/contract management as needed	Procurement specialist	8
Financial management (FM) training and monitoring	Financial management specialist	2

III. Social Safeguards

4. Implementation Strategy. During the first twelve months of project implementation, focus will be on recruiting staff, updating the RAP produced before appraisal, and implementing the RAP and Social Management Plan. Activities will include the procurement of the required specialists to update the RAP; this updated RAP will be based on the final detailed design of the project. The PMU will be staffed with safeguard specialists and, during the first twelve months, preparations will be made for the implementation of the RAP and the Social Management Plan (SMP). The latter will involve the constitution of the safeguard implementation structures and staffing of these structures.

5. At the second stage (12-48 months), the focus will be on safeguards implementation and completion, monitoring, and evaluation.

6. During both stages, the time and resources used by the Bank's social safeguard/development specialists will be extensive. During the first stage, coordination with the Bank's procurement specialist and relevant PMU staff will be important, along with capacity development and advisory services to the PMU. During the second stage, tasks will shift more in the direction of monitoring and evaluation, trouble shooting, coordination, and conflict resolution. When civil work starts, the inputs in terms of time and resources for social safeguards implementation are expected to diminish (see table A4.2 for details).

Table A4.2: Social Safeguards

Time	Focus	Skills Needed	Resource Estimate	Partner Role
First 12 months	<p>1. Updating of the Resettlement Action Plan and Social Management Plan based on the final detailed design phase.</p> <p>2. Contracting of social development specialist within the PMU able to supervise the resettlement specialist and property appraiser in the updating of the RAP.</p> <p>3. Setting up of the resettlement and social development and implementation mechanisms.</p> <p>Identification of the Right-of-Way (ROW) acquisition team, authorized to make offers of compensation and initiate expropriation proceedings for problematic land and property owners choosing this option.</p> <p>4. Contracting of an external monitoring agent for resettlement.</p>	<p>1. Property appraisal expertise; resettlement expertise.</p> <p>2. Supervisory and coordination skills; understanding of Bank policies; experience in community development; grievance handling; and conflict resolution.</p> <p>3. Negotiation skills; familiarity with Bank policies; legal expertise and experience in expropriation proceedings; and experience with receiving and handling grievances.</p> <p>4. Monitoring and evaluation expertise.</p>		<p>1. Bank social safeguard specialist to assist in drafting terms of reference and supervision.</p> <p>2. The PMU to hire social development specialist. Bank social safeguard specialist to provide training.</p> <p>3. The PMU to establish the ROW Acquisition team; Bank social safeguard specialist to provide orientation on Bank policies and receive reports and provide training on grievance handling.</p> <p>4. UCCI to procure this external agent; Bank social safeguard specialist to review and finalize TOR, review cost estimates, recommend clearance, and monitor procurement process.</p>
12-48 months	<p>5. Implementation of the RAP and SMP.</p>	<p>5. Negotiation skills and legal expertise; project management skills; expertise in enterprise development.</p>		<p>5. UCCI to implement RAP and SMP; Bank social safeguard specialist to monitor progress, and monitor grievance.</p>

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III. Environmental safeguards

7. Scope of the Environmental Impact Assessment. A comprehensive Environmental Impact Assessment (EIA) was prepared to identify potential environmental impacts that may be generated during pre-construction, construction and operational stages of the project. The Environmental Management Plan (EMP) lays out detailed plans for mitigation, monitoring and reporting of all identified impacts and addresses relevant institutional responsibilities; the policy, legal, and administrative framework; cost and financing; and monitoring. The description of environmental issues was developed based on alignment sheets. These sheets include information on alternative alignments and locations of transitways, terminals and stations; selected locations of all project-related development sites; general layout and extent of facilities at project-related development sites; flow diagrams of facilities and operations, design basis, size, capacity, pre-construction activities; construction, schedule, facilities and services; and operation and maintenance activities. Good construction practices are included in a Grievance Redress Mechanism, which is detailed in the EMP.

IV. Environmental Management Plan Implementation Strategy

8. The Bank will supervise the implementation of the Environmental Management Plan included in all the civil works contracts. The Bank will undertake actions to ensure that the project complies with the Bank policy on environmental assessment. These standard actions include: (i) strengthening the capacity of PMU staff in Bank environmental safeguard procedures through training workshops and just-in-time support; (ii) periodic project environmental safeguard monitoring and supervision; (iii) reviewing and providing no-objections to the civil works contracts and terms of reference for the independent environmental monitoring consultant and construction supervision consultant; and (iv) providing guidance and feedback to the PMU on strengthening its environmental supervision performance.

V. Fiduciary Inputs and Monitoring

9. The Bank team will provide intensive hands-on support and closely supervise the financial management (FM) and procurement performance. Training will be provided by the Bank's FM and procurement specialists before the commencement of project implementation, as well as throughout project implementation as needed. The Bank's FM specialist and the procurement specialist are both based in the country office to provide timely support to UCCI, including FM and procurement staff. Supervision of the FM and procurement activities will be carried out semi-annually as part of the project implementation support plan. The Bank's procurement review includes prior review and post review in accordance with the procurement thresholds applicable to Vietnam and the characteristics of the procurement packages.

Annex 5: Bus Rapid Transit Planning, Design, and Management

VIETNAM: Ho Chi Minh City Green Transport Development Project

1. The objective of the pilot BRT project is to improve the performance and efficiency of public transport along a high priority corridor in Ho Chi Minh City. The project is designed to ensure that, consistent with the greenway concept, urban development relates positively to the BRT in terms of form and density, including surrounding development and connectivity to the BRT. The success of this BRT, in meeting its objective of providing a realistic alternative to private transport and stopping a future potential migration to cars, depends on its ability to address user needs and incorporate in its design and implementation the importance of land use planning and the BRT's link to the wider environment. The potential to expand the BRT to other corridors is dependent on the success of this first corridor. The basic principles supporting the project design are:

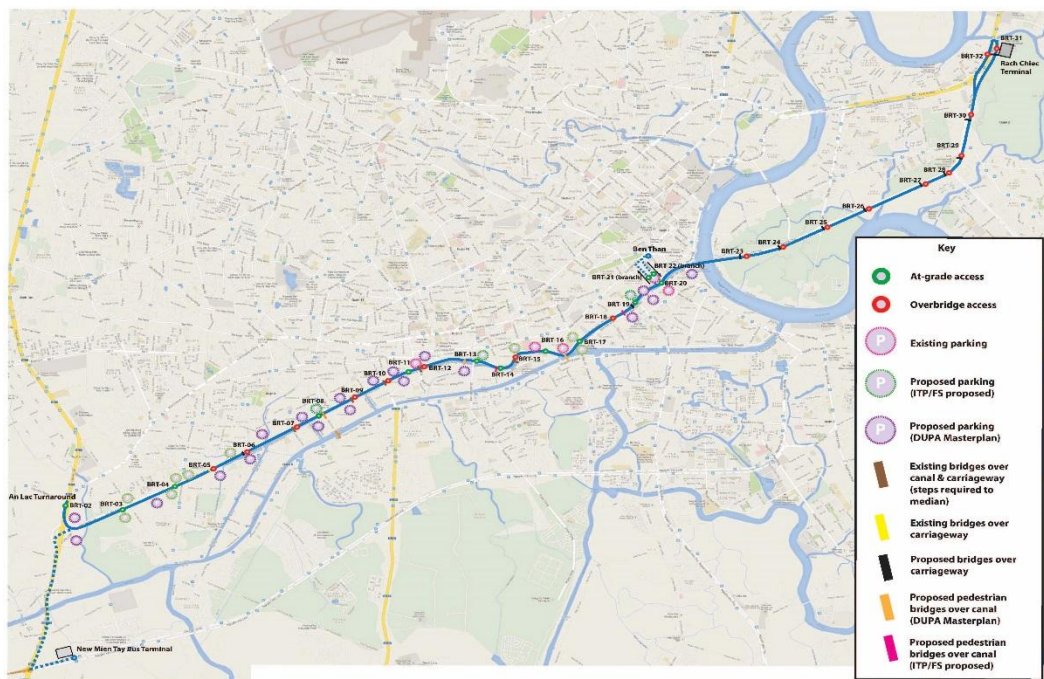
- (a) Creating an optimal route in terms of technical design, operational efficiency, and cost effective implementation.
- (b) Developing a green and environmentally friendly environment, echoing the objectives of the “green corridor” and offering low carbon travel.
- (c) Providing user friendly transport focused on the needs of all users and respecting the needs of those with disabilities and other vulnerable populations.
- (d) Adapting to the local context in HCMC, recognizing the motorcycle culture and addressing how BRT can attract motorcycle users and respect the local climate.
- (e) Supporting integration with other transport modes, in terms of physical integration and payment, as well as information integration.
- (f) Presenting the BRT as an example that can demonstrate the city's future as a green city of growth, providing a context for developing skills and ideas.

2. The greenway concept sets an ambition for the corridor that stretches beyond that of transport but within which transport should be a key facilitator. Basic design of the project was discussed in a broad stakeholder workshop in 2013, and some of the principles influencing the design are:

- (a) Development along the canal. The banks of the canals would remain dedicated to mixed use and residential functions, with streets and canal banks heavily planted with trees. Some ‘green ideas’ would be developed in connection with the project such as: i) ecological power generating devices that could be visible along the boulevard; and ii) an ecological rain water collection and water treatment system that could be installed.
- (b) Transit oriented development at key stations. The BRT stations are to be iconic and might become landmarks of the boulevard. Unique in their architectural design, the BRT stations are to evoke a water palm tree and, on their vertical slopes, grow tropical vegetation providing shading and shelter to the public. By night, the stations would be the lighted landmarks of the Boulevard. There are six different urban and landscape sequences identified with different assets for development. The BRT station gives an opportunity to create public areas connecting one to another with footbridges across the canals. In addition, stations are connected to a network of streets and walkways mixing activities and commercial venues.

- (c) Access to BRT stations. Access to BRT stations is proposed, wherever possible, at-grade facilitated by traffic signals with protected pedestrian phases. This reduces the amount of physical effort required to access the BRT and thus encourages use. The exception to this principle is where at-grade access introduces road safety issues or has an overt affect upon the vehicle carrying capacity of the road. In those cases, at-grade access incorporated into signalized intersections will be sought. Where this is not possible pedestrian bridges will be proposed, taking into considerations the length of the bridge (whether it just crosses the road or both the road and canal).
- (d) Motorcycle parking. In the future, it is envisaged that the motorcycle's primary role will be that of an access mode to mass transit and, additionally, a mode for short trips. As such, motorcycle parking at the BRT stations acts to increase the catchment area for the station and encourage motorcycles as an access mode.
3. Physical description. The proposed BRT corridor is from An Lac in the southwest to Rach Chiec in the northeast following the Vo Van Kiet and Mai Chi Tho Boulevards (figure A5.1).

Figure A5.1: Vo Van Kiet-Mai Chi Tho BRT Corridor



Source: “Ho Chi Minh BRT Study. Final Report”. November 2014. Integrated Transport Planning Ltd.

4. The route between Highway 1 and the Saigon River is wide with generally at least two lanes in each direction, with additional motorcycle lanes provided along Vo Van Kiet between Cau Calmette and the junction with Highway 1a at An Lac. The route passes through low density semi-industrial land to the west and through the traditional Chinese quarter of Cho Lon before passing by the Central Business District of District 1. Between Cau Rach Cay in the West and

the Saigon River tunnel, the route travels along the northern bank of the canal, effectively severing the route from activities on the south bank. The route between An Lac and Saigon River will see the redevelopment of the existing low-density development and urban infill. The BRT will pass under the river in mixed traffic (through the Thu Thiem tunnel) to arrive in the Thu Thiem (District 2) development area.

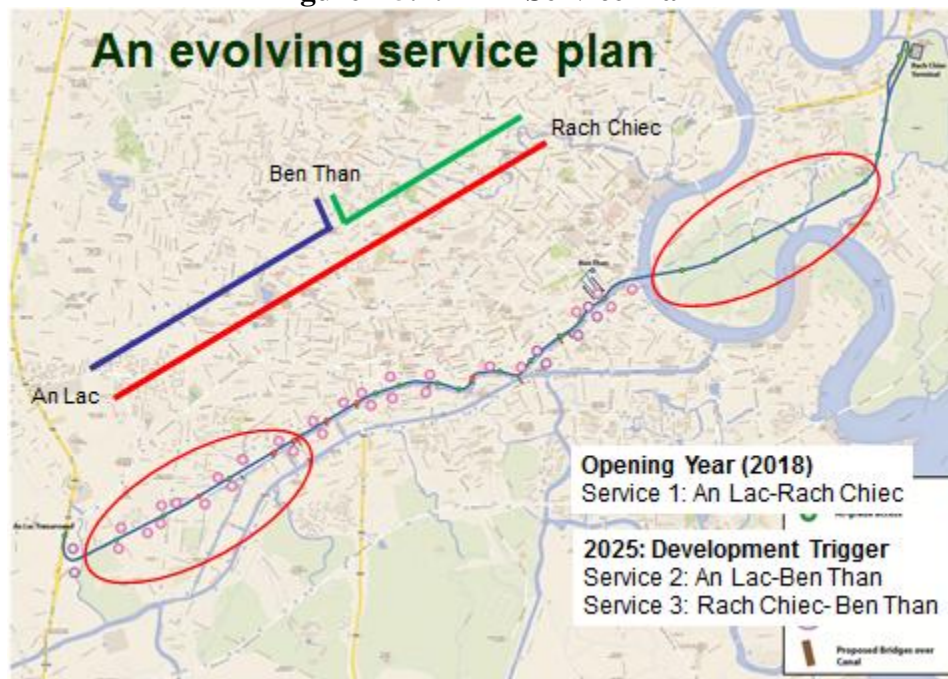
5. Thu Thiem is, as of 2015, sparsely developed, but development is planned to be completed by 2030, including high-density mixed-use development with a new train station and a train line serving the area's core. The train station will also provide a terminus for the planned MRT Line 2. MRT Line 1, currently under construction, has a station at the northern end of the BRT line, at Rach Chiec.

6. As a result of urban regeneration between An Lac and Saigon River and new development in Thu Thiem, the corridor is expected to experience significant growth in travel demand.

7. Demand forecast. A detailed passenger forecasting model has been developed and validated using newly collected volume, journey time, and origin-destination data, in order to determine the demand for the BRT. Passenger demand was estimated for 2013, 2020, 2025, and 2030. The base year is 2013, with 2020 and 2025 chosen as years for which detailed growth forecasts are available. 2030 is the chosen design year, as it is the year that the Thu Thiem development is forecast to be completed and MRT 1 operational. All infrastructure is to be designed to meet demand in the 2030 design year, which is almost 12 years after the opening in 2018. Future year forecasts were developed by applying socioeconomic growth data derived from the Ho Chi Minh City Master Plan and detailed construction plans at district and project level.

8. Service plan. The BRT service plan (figure A5.2) has been developed to best meet the forecasted demand, both in terms of overall total volume and origin-destination patterns. Three services are proposed. The first is a single trunk service operating between An Lac and Rach Chiec, which would start operation in 2018. As demand increases, two further services will be introduced. These will operate between An Lac and Ben Thanh, and Rach Chiec and Ben Thanh. These additional services would be introduced in 2025, 7 years after the opening year. No need or benefit was identified to operate an express service.

Figure A5.2: BRT Service Plan



Source: “Ho Chi Minh BRT Study. Final Report”. November 2014. Integrated Transport Planning Ltd.

9. The majority of existing bus services begins operation at either 5:00 or 6:00 in the morning and finishes by 22:00 in the evening; examination of corridor demand has shown that a service operating an 18 hour day between 05:00 and 22:00 would meet the observed demand. The frequency of services would vary throughout the day to match the fluctuating demand. This reduces operating costs as it minimizes the running of low occupancy buses in the middle of the day.

10. An “Open” BRT System. Although initially the BRT will be a closed system, an open BRT system is recommended for the medium to long term, with BRT services running mixed with ‘other traffic’ in the short distances from the dedicated transitway corridor to the Cho Lon and Ben Thanh bus stations (see also figure A5.3). These locations serve as important interchange sites and will contribute to increased ridership along the core BRT route. Based on an analysis of existing bus services and demand forecasting, it was found that until 2025 serving Cho Lon or Ben Thanh would not be justified; as such, only a trunk service between An Lac and Rach Chiec is required. However, by 2025, demand might have increased (due to anticipated corridor based development and the further development of Thu Thiem) to a level that both services would be justified.

11. The adoption of an open system has the following implications:

- (a) Vehicles will enter the segregated sections of the transitway at random times due to the journey time variability involved in mixing with other traffic. Where headways are large, this should not cause a problem, but an entry management system might need to be considered if headways become smaller. Such a system would hold back

vehicles from entering the segregated way until a sufficient gap is detected between vehicles.

- (b) Buses will need to have doors on both sides in case buses on an open service plan are required to stop at the curbside. At the curbside, there will also be a step entry, which can represent a barrier to people with mobility problems.
- (c) Means of payment and payment validation for entry to the “BRT system” will need to be considered.

Figure A5.3: Illustration of an Open BRT System



Source: “Ho Chi Minh BRT Study. Final Report”. November 2014. Integrated Transport Planning Ltd.

12. BRT design philosophy. BRT passengers are expected to be either existing bus users, persons changing mode, or passengers from new development areas (see also below). To understand the needs of these three groups, additional surveys were undertaken and combined with available research on patronage and mode shift. The surveys included i) household/workplace surveys; ii) on-street interviews; and iii) focus group discussions (with both women and men).

- (a) Existing bus users. A single bus route, Route 39, already operates along part of the planned BRT corridor—between Mien Tay bus terminal and Ben Thanh. The buses run at a 15-minute headway and services are operated by Saigon Bus. Existing bus users are largely viewed as ‘captive’ users. They are cost sensitive and do not have access to other modes of transport. The transfer of existing bus users makes up approximately 30 percent of the BRT passengers forecast. The bus is seen as the mode of last resort and the BRT will constitute an upgrade in travel experience for these passengers.
- (b) Passengers changing mode. Mode shift of the existing population from private modes to BRT constitutes the largest proportion of estimated BRT demand. Private transport almost exclusively consists of motorcycles. It is worth noting that the “middle class” demographic within Ho Chi Minh City is on the rise and with that,

car ownership is likely to increase. While recognizing that the motorcycle will remain the most attractive transport mode for most of the population, the project is designed to satisfy the needs of the marginal motorcycle user who is most likely to make the modal shift. The provision of park and ride facilities at stations, as proposed in the project definition, offer motorcycle users the option to use BRT for part of their journey. In addition, passenger and household surveys reveal that the bus mode is at present mostly patronized by school children, women with children, and older people. The project is designed to address the needs of the marginal market and attract a larger share of the potential market. Analysis suggests that 81 percent of the respondents using private modes would consider switching to BRT for their infrequent trips, but only 19 percent of frequent trip makers are likely to make the shift more permanently.

- (c) New development. The BRT corridor will undergo significant changes, with infill development between An Lac and the Saigon River and new “greenfield” development in Thu Thiem. New trips emanating from these developments are expected to contribute significantly to a growing demand. It is expected that an increase in vehicle trips resulting from new growth would further congest the already congested corridor and motivate some passengers to make the shift to the convenient and comfortable services provided by the BRT. The forecasted passenger growth applied within the model attributable to new urban development is derived from land use plans as approved by DUPA for the corridor.

The BRT Running Way

13. The HCMC PC has decided that while the new Mien Tay bus station is not yet put into use, the BRT route alignment will go as follows: Cat Lai interchange (Rach Chiec) – Mai Chi Tho – Vo Van Kiet – An Lac (turning around at the An Lac turnaround). Standard BRT running way dimensions of 3.5 meters wide, physically separated from other traffic by an appropriate barrier, would be adopted. The area reserved for bus docking at BRT stations would generally be 3 meters wide, but—depending upon bay arrangements—length and width would be designed to accommodate vehicle swept paths for making the manoeuvres required to achieve level boarding.

14. The end of the BRT route at An Lac is not designed to be a terminal, and buses would not lay over here other than for scheduled recovery. Buses would, however, pause at An Lac to enable timely dispatch to maintain proposed vehicle headways. The An Lac turnaround would be located within the existing median of the road.

15. At its north-easternmost end, the BRT will turn around and terminate at Cat Lai. This provides for an interchange with MRT 1 and planned new development southeast of Hanoi Highway.

Stations

16. Considering the proposed frequency of buses (a peak combined frequency of 18 buses per hour) and the relatively simple service plan, it is recommended that two non-service allocated bus bays be provided. Operationally this means that the first bus arrives and pulls up at the furthestmost stand, allowing passengers to alight and board before leaving the station again. Should another bus arrive, it will use the stand behind the other bus, only leaving the stand when the bus in front has departed. Given the maximum combined headway, most times only one bus

would be at the stations; only occasionally two buses would be there. It is highly unlikely that there will be demand for more than two services at the station. For two bus bays, a platform length of 30 meter is proposed. This accommodates two 12 meter buses and allows flexibility in the management of internal space.

17. It is proposed that entry and exit to the stations are at the same point, to simplify access across the highway to the centrally located station. For at-grade access, enough space needs to be provided for those wishing to cross the highway (either going to or leaving the stations) to allow them to safely congregate and await safe passage. It will be necessary to fence the area to prevent conflict with fast moving vehicles. For access with pedestrian bridges, sufficient space should be available to develop a bridge that is of sufficient size to accommodate forecast passenger numbers; in this case congregation space is less of an issue as there is no conflict with vehicles. Figure A5.4 illustrates an artistic representation of a BRT station.

Figure A5.4: Artistic representation of a BRT station



Source: “Ho Chi Minh BRT Study. Final Report”. November 2014. Integrated Transport Planning Ltd.

Vehicles

18. The BRT vehicle will be a conventional bus, but matched to the system concept. Considering initial demand estimates, a standard length (circa 11 meter) non-articulated bus is considered appropriate. The bus should maximize its internal passenger carry capacity, should be fit for local conditions, facilitate an ease of movement for passengers in and out of the vehicle, and be readily maintainable and affordable. It should also take into consideration in its design special needs by groups such as women, children, and people with disabilities, among others. As an open BRT system is proposed, buses will be required to have doors on both sides. On the left side, doors will open to allow direct (without steps) access to the BRT platform. On the right side, there will be two steps to normal curb height.

19. As an appropriate fuel type should be selected that meets the BRT’s environmental objectives, it has been recommended to adopt CNG. This takes into consideration the local experience with CNG bus operation and the uncertainty related to Euro IV diesel supplies by the year the BRT system is scheduled to open.

Annex 6: Cost Benefit Analysis

VIETNAM: Ho Chi Minh City Green Transport Development Project

1. The economic analysis shows that the Ho Chi Minh City Green Transport Development Project (GTDP) is economically viable. The project's development objective is to improve the performance and efficiency of public transport along a high priority corridor in Ho Chi Minh City. The incremental cost-benefit analysis used to reach these conclusions is based on time savings and reductions in vehicle operating costs (VOCs), as well as other quantifiable and non-quantifiable benefits. The Project's economic rate of return (EIRR) is 18.43 percent, with an economic net present value (ENPV) of US\$120.56 million.

2. Positive externalities derived from GTDP construction and the barriers to entry that the private sector faces in financing this type of infrastructure project justify public sector financing. Given the large investments required for BRT infrastructure, only public sector financing would make GTDP construction feasible. In addition to providing direct benefits to its riders, the project will save time for other surface transport users by reducing vehicle congestion in Ho Chi Minh City. Moreover, the project will lower transport-related emissions of atmospheric pollutants, traffic accidents, and noise levels in the city. In addition, the project will generate benefits for vulnerable social groups and increase the city's overall transport efficiency. Because these are mostly external effects, the economic analysis model cannot capture them directly.

3. The use of World Bank resources is justified because of four interrelated factors. First, the project is viable in economic terms. The conventional use of a discount rate of 12 percent for transport projects can be viewed as a rationing device for Bank funds. Second, the project's expected outcomes and potential impact on poor and vulnerable groups are aligned with the three pillars of the Bank's CPS for Vietnam. Third, due to experience with previous infrastructure projects, the Bank can add value during the design and construction phases as well as at the policy level. For instance, the technical assistance proposed for the project will be critical to assessing its social impact and to devise policy instruments that target the needs of poor and vulnerable groups. Finally, the Bank's favorable credit conditions mitigate the Project's fiscal impact on municipal finances.

A. Cost-Benefit Analysis

4. A detailed cost-benefit analysis (CBA) was conducted for the project, which shows an economic net present value (ENPV) of US\$120.56 million, at a 12 percent discount rate. Over a life of 20 years (of which 16 years of operation), the project is expected to deliver an economic internal rate of return (EIRR) of 18.43 percent, and an economic benefit-cost ratio (EBCR) of 1.59.

5. The project has a negative financial net present value (FNPV) of US\$190.4 million, meaning that the present value of its commercial costs exceeds the present value of its commercial benefits (i.e. fares and advertisement revenues). Its financial benefit cost ratio (FBCR) is 0.07. Over the evaluation period, discounted revenues never surpass discounted costs, indicating that without subsidies the project may not be financially viable.

6. The main quantifiable economic benefits measured were time savings for passengers, reductions in vehicle operating costs, and improved traffic safety. Additional benefits, such as transport-related local emissions, noise reduction, gender equity, and access to employment

opportunities, could not be quantified with enough certainty and thus were not included in the analysis. The basic assumptions on ridership, reduced travel time, value of time (VOT), vehicle operating cost (VOCs), and reduced fatalities and injuries from road accidents until 2025 are shown in the following table:

	2018	2019	2020	2021	2022	2023	2024	2025
Ridership (passengers/day)	22,918	24,709	26,500	26,853	27,212	27,575	27,942	28,315
Travel time reduced per trip (minutes)	2.0	5.0	8.0	11.0	14.0	17.0	20.0	23.0
Willingness to pay ³² (VOT: VND/minute)	1,636.57	1,724.95	1,818.09	1,916.27	2,019.75	2,128.82	2,243.77	2,364.94
Unit VOC saving (VND/passenger)	35,923	35,923	35,923	35,923	35,923	35,923	35,923	35,923
Reduced fatalities (persons)	-	-	-	-	-	1.00	2.00	3.00
Reduced injuries (persons)	-	-	-	0.47	0.94	1.41	1.88	2.35

7. The benefits from reduced VOCs dominate in the beginning of the project, accounting for more than half the project's benefits in the early years. However, with increasing patronage and a rise in the value of road users' time, road users' benefits eventually overtake other benefits in later years. The relative shares of benefits captured by different groups are illustrated in the table below:

	2018	2019	2020	2021	2022	2023	2024	2025
Benefits from reduced PT users travel time (VND Million)	7.6%	15.9%	21.8%	25.8%	28.7%	30.5%	31.8%	32.6%
Benefits from reduced VOC (VND Million)	83.5%	66.0%	53.8%	44.0%	36.4%	30.3%	25.4%	21.5%
Benefits from reduced non-PT users travel time (VND Million)	8.9%	18.1%	24.4%	30.1%	34.8%	38.6%	41.8%	44.6%
Benefits from increased road safety	0.0%	0.0%	0.0%	0.1%	0.1%	0.6%	1.0%	1.3%

8. The main costs included in the model are infrastructure investments required to support the BRT system (including BRT and ITS), traffic engineering, system management and safety, land use improvements, operation and maintenance costs, and infrastructure maintenance. The project investment cost is US\$137.45 million, where the present value of the recurring costs is US\$66.79 million; the stream of recurring costs until 2025 is presented in the following table:

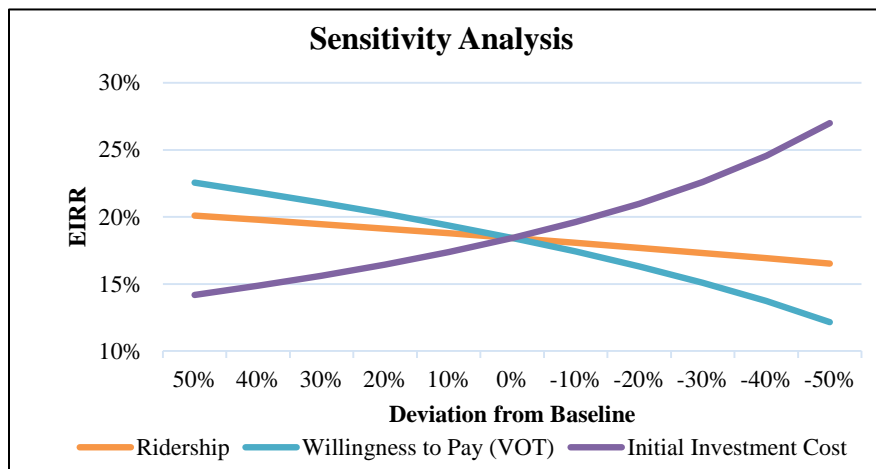
	2018	2019	2020	2021	2022	2023	2024	2025
Direct Operating Costs (VND Million)	54,449.0	62,277.5	70,106.0	97,471.4	124,836.8	152,202.2	179,567.6	206,933.0
Systems Management (VND Million)	30,054.0	28,113.0	26,172.0	27,990.2	29,808.4	31,626.6	33,444.8	35,263.0
Infrastructure Maintenance (VND Million)	30,116.0	31,659.5	33,203.0	35,037.6	36,872.2	38,706.8	40,541.4	42,376.0

B. Sensitivity Analysis

³² Using the proxy from Hanoi City, based on a study "Mode Choice Behavior and Modal Shift to Public Transport in Developing Countries – the Case of Hanoi City," by Anh Tuan Vu, Ph.D.

9. The robustness of the cost-benefit analysis results is confirmed through a sensitivity analysis of the model's key variables: initial investment costs, demand estimates, and time values. The sensitivity analysis confirms the soundness of investing in the project. The sensitivity of the EIRR to changes in initial investment costs, ridership, and VOT is illustrated in the following table and diagram:

ENPV at 12% (USD Million)		Initial Investment Cost (increase)			
		0%	10%	20%	30%
Ridership (decrease)	0%	120.56	106.81	93.07	79.32
	-10%	112.08	98.34	84.59	70.85
	-20%	103.61	89.87	76.12	62.38
	-30%	95.14	81.39	67.65	53.90



10. The sensitivity analysis reveals that the project will maintain a positive ENPV even if ridership demand falls by 40 percent. Likewise, even an initial investment cost overrun of 40 percent would not necessarily lead to a negative ENPV. The Project is most sensitive to changes in the value of time. But even so, a 40% reduction in the value of time still yields a positive ENPV of US\$25.87 million.

11. Other simulations further test the project's financial robustness; the project will maintain a positive ENPV even with a fall in demand of 30 percent and an initial investment cost overrun of 30 percent occurring simultaneously. Changes in other variables, such as operation and maintenance costs, have a minor impact on the project's economic viability, because the NPV remains positive even when doubling those values.

Annex 7: Map

VIETNAM: Ho Chi Minh City Green Transport Development Project

