

20th December 2017

To: Chief, Innovative Contracting
MDOT State Highway Administration
ATTN: Mr. Jeffery T. Folden, P.E., DBIA

Subject: Official Submission of response to RFI

Dear Mr. Jeffery T. Folden,

On behalf of my company and our Korea consortium (SAMOOOCM, HWASHIN ENGINEERING, and SAMBO ENGINEERING), we would like to express strong interest in participating in the I-495, I-95 (Capital Beltway) and I-270 Congestion Relief Improvement Project. Also, we have met with Minority Business Development Agency (MBDA)'s Maryland office on December 19, 2017 to form strong partnership to participate in this project together.

We have enclosed our response to the RFI below for official submission.

Please do not hesitate to contact us if you need more information regarding the RFI.

Thank you

Yours sincerely,



Hur, In
CEO and President
SAMOOOCM Architects & Engineers Co., Ltd.

SAMOOOCM ARCHITECTS & ENGINEERS CO., LTD.
69 BAEKJEOBUN-RO, SONGPA-GU, SEOUL, KOREA
BUSINESS REGISTRATION NO.: 215-81-25903
REPRESENTATIVE OF THE COMPANY : IN HUR

Response to Maryland DOT's RFI

I-495/I-95 (Capital Beltway)

Congestion Relief Improvements from the American Legion Bridge to the Woodrow Wilson Bridge

I-270 Congestion Relief Improvements

From I-495 to I-70

December 20, 2017

Korea Consortium





1. RFI's Intent

- Provide the basic information about this project, and when this project is promoted as a private investment, we will collect opinions of experts such as individuals, companies, and organizations, etc. to evaluate the appropriateness of pushing forward private investment project.
- Reviewing specific and innovative initiatives throughout the project by gathering of opinions from experts and collecting ideas

2. Background & Objective

2.1 Background

➤ I-495 / I-95

- I-495 / I-95 is the busiest highway in Maryland, and the traffic environment is worsening every day due to the increasing number of nearby residential and commercial facilities.
- To improve these problems, MDOT has carried out continuous reviews and research and proposed the following alternatives in 2004.
 - Alternative 1: New establishment of 6-lane general road + 4-lane Toll Expressway
 - Alternative 2: New establishment of 8-lane general road + 2-lane Toll Expressway
 - For each alternative, it includes interchange improvement proposal

➤ I-270

- The I-270 Highway is in Frederick and Montgomery County with the largest daily average traffic volume of 260,000 vehicles. It is one of the busiest highways and is Washington's most important expressway network linking I-495 and I-70.
- MDOT conducted the "I-270 / US15 Multi-Modal Corridor Study" to improve the safety of the I-270 corridor and eliminate traffic congestion. Also, for some part of the section, MDOT and VDOT have conducted "the West Side Mobility Study". The major contents of the West Side Mob are as shown below.
 - Expansion of existing road & introduction of multi-seater only lane
 - Introduction of toll expressway lane which can connect to VDOT toll lane
 - Improvement of current roads such as improvement of interchange, etc.
- MDOT is currently aggressively implementing the design and construction contract of the I-270 Innovative Traffic Congestion Management Plan (ICM), which will be completed at the end of 2019 to reduce short-haul traffic congestion. The main contents of ICM are as follows
 - Extension of general road & extension/expansion of additional car lane
 - Establishment of an active traffic management measure such as the widening of a road for the expressway, Ramp Metering & improvement of a road sign, etc.
- The improvement work of M85 connected with I-270 is expected to be completed by the end of 2020, and the IC works on Watkins Mill Road scheduled to be completed by summer 2020



2.2 Objective

- I-495 / I-95 and I-70 through multi-seater only lane system and increasing highway capacity, etc. to solve the traffic jam and stagnation, it is aimed to promote the innovative and breakthrough project by private participation.
- Note during pushing forward with private investment project of MDOT
 - In addition to the general work of private business partners, they shall be able to carry out business promptly and minimize the influence of lot boundaries, etc. such as providing an innovative concept for an overall project such as innovative design, finance, and construction, etc.
 - Instead of collecting tolls through building new tolled roads, continuous free usage of existing roads for users
 - It is not a request for funding to the Maryland Transportation Trust Fund, but a transfer to MDOT at the end of the financial commitment
 - The anticipation of countermeasure preparing additional funding such as aid through federal funding sources and transportation infrastructure financing, etc.

3. Request for Information Status & Countermeasure and Considerations Regarding this Matter

3.1 General Status

Question 1. Please describe your firm, its experience in relation to P3 projects, and its potential interest in relation to these potential congestion relief improvements.

■ Record for Participating Firm

① General Description of SAMOOCM

a) General Information

SAMOOCM Architects and Engineers Co., Ltd. (hereinafter referred to as SAMOOCM) is a global leader with 41 years of experience in the full spectrum of construction consultancy services including Project Management, Construction Management, Supervision, Design, Engineering, BIM and other services. By successfully completing around 980 projects, SAMOOCM has gained a sound reputation as a total solution provider for a construction project and was ranked top 14 CM/PM for Fee among non-US firms by ENR in 2016 (Engineering New Record, USA).



NAME OF FIRM	SAMOO.CM ARCHITECTS & ENGINEERS CO., LTD.
ADDRESS	69, Baekjegobun-ro, Songpa-gu, Seoul, Korea
COUNTRY OF ORIGIN	The Republic of Korea
JOINT REPRESENTATIVE	Mr. In Hur
CONTACT PERSON	Mr. Sang Chul Lee
HEAD OFFICE	TEL. +82-2-3400-3370 FAX +82-2-3400-3915
E-MAIL ADDRESS	leesc@samoo.com
ESTABLISHED DATE	March 7, 1979
INCORPORATION DATE	June 5, 1992
CAPITAL	US\$61,865,013.90 (US\$1= ₩1,115.30)
PERMANENT EMPLOYEES	680 Staff
ISO CERTIFICATE	ISO 9001:2008 Quality Management System ISO 14001:2004 Environmental Management System

➤ **Professional Staff**

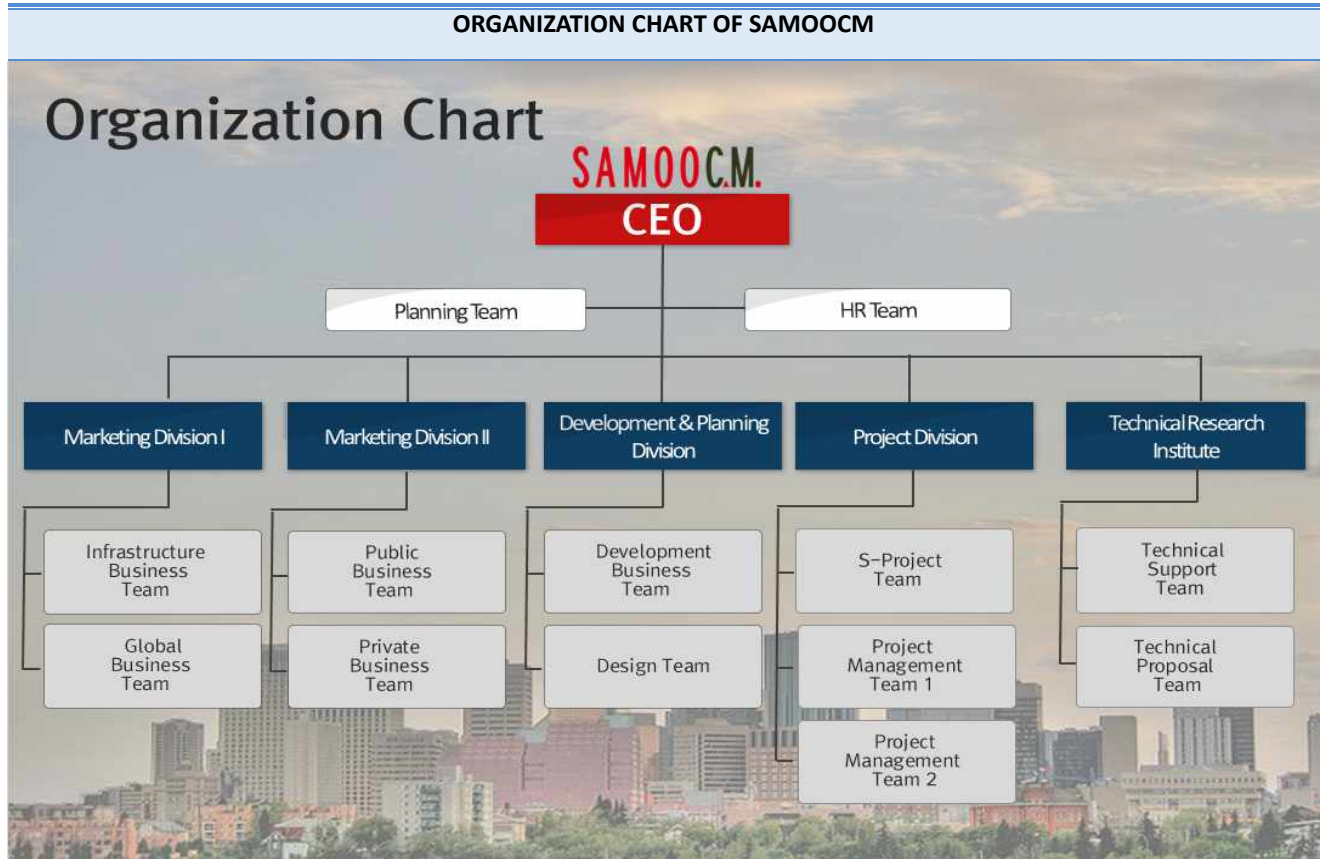
SAMOO.CM's staff is comprised of experienced professional engineers and specialists with training in virtually every applicable discipline including:

- ✓ Project Managers
- ✓ Construction Managers
- ✓ Contract Administrators
- ✓ Quantity Surveyors
- ✓ Architects
- ✓ Civil Engineers
- ✓ SMEP Engineers
- ✓ Field Inspectors
- ✓ Financial Analysts
- ✓ Information System Engineers
- ✓ Quality Assurance & Control Experts
- ✓ Safety Experts
- ✓ Schedulers
- ✓ Value Engineers



b) Organization

SAMOO.CM have 4 divisions. Main divisions are Marketing Division, Development & Planning Division and Project Division. In addition, there are 1 Technology R&D Institute which provides technical support to the above-mentioned divisions. There are also Planning Team and HR Team.



c) ISO Certificate





d) Financial Status

Summary of Financial Statement

(UNIT: 1,000 US\$)

This Table summarizes the financial information of SAMOOCM ARCHITECTS & ENGINEERS Co., Ltd for the three (3) years. The detailed description of the financial information is presented in the following attachments.

Classifications	Amount (SAMOOCM Architects & Engineers CO., LTD.)		
	2014	2015	2016
Current Assets	16,038	21,021	19,339
- Quick Asset	16,038	21,021	18,727
Non-current Assets	11,576	6,245	5,956
Total of Assets	27,614	27,267	25,295
Current Liabilities	4,255	5,878	8,129
Long-Term Liabilities	8,228	7,392	2,108
Total of Liabilities	12,483	13,271	10,238
Total of Stockholder's Equity	15,131	13,997	15,057
Total Liabilities and Stockholder's Equity	27,614	27,267	25,295
Sales	67,713	55,621	57,153
Operating Income (Annual Gross Profit)	5,180	203	4,100
Net Income	-1,245	553	779
Net Worth (Assets-Liabilities)	15,131	13,996	15,057

Top CM/PM Firm in Korea
Ensuring Credibility



* Exchange Rate:

1,045.00 KRW / USD, Dec. 31, 2014

1,177.50 KRW / USD, Dec. 31, 2015

1,207.26 KRW/ USD, Dec. 31, 2016

Financial Stability

Credit Level A-/Stable

Evaluation	Issuer Rating
Evaluation type	Standard evaluation
Net Revenue	6.54 billion(KRW)
Total asset	3.21 billion(KRW)

SCI SEOUL CREDIT RATING & INFORMATION INC.

Good credit score

SAMOOCM has an overall good credit score evaluated by Korea's credit rating agency, SCI

Credit Level is valid until June 07 2018



■ **Company Track Records**

SAMOO C.M.'s BTO/BTL Project List

No.	Purpose	Project Title	Type	Client	Project Period	Size
1	Road	Deoksong Naegak Expressway Construction Supervision	BTO	Deoksong Naegak Expressway Corp.	Oct. 2013~ Apr. 2017	L=4,901 km, B=20 m (4 Lanes Road)
2	Healthcare Facility	Yeongju Red Cross Hospital Construction Management	BTL	Ministry of Health and Welfare	May 2015~ Mar. 2017	Ground level: 5th Floor Underground level: 1st Floor
3	Healthcare Facility	Seogwipo Medical Center New Building Construction Management	BTL	Jeju Special Self-Governing Province	Oct. 2011~ Jan. 2014	Ground level: 4th Floor Underground level: 2nd Floor
4	Healthcare Facility	Chungju Medical Center Relocation/New Building Construction Management	BTL	Chungju medical center	Oct. 2009~ Mar. 2012	Ground level: 4th Floor Underground level: 3rd Floor
5	Healthcare Facility	Seoul National University Advanced Outpatient Center	BTL	Seoul National University Medical Hub	Jan. 2015 ~ Apr. 2018	-
6	Healthcare Facility	Gongju Medical Center Relocation /New Building Detailed Design	BTL	Gyeryong Construction	Sept. 2013 ~ Dec. 2016	Ground level: 6th Floor Underground level: 2nd Floor
7	Healthcare Facility	Gangnamgu Senior Citizen Professional Hospital New Construction	BTL	Kolon Construction	Aug. 2011~ Sept. 2011	Ground level: 5th Floor Underground level: 2nd Floor
8	Educational Facility	Kyunghee University International Campus	BTL	Seohee Construction	Dec. 2010~ Jul. 2011	-
9	Educational Facility	Segyo Elementary School Construction Supervision	BTL	Gyeonggi kkumnamoo	Aug. 2008~ Aug. 2009	Ground level: 4th Floor
10	Residential Facility	Pyeongtaek USFK military housing privatization	BTL	Pinnacle AMS	Jul. 2008 ~ Sept. 2008	-



② **General Description of SAMBO ENGINEERING**

a) General Information

Sambo Engineering has grown into a global engineering & consulting company specialized in planning, basic & detailed design, project & construction management and supervision for transportation infrastructures, environment & energy, buildings and water resources etc.

More than 500 employees are actively carrying out a variety of projects in World-wide overseas markets of about 30 countries, which enables us to transfer the advanced technology and to assign competent engineers who understand the local cultural differences and meet the client’s requirements.

By participating in a lot of ODA projects procured by KOICA, EDCF, ADB and WB as well as Design-Build or PPP projects, SAMBO Engineering still builds an impressive business portfolio.

We, SAMBO Engineering, will be one of the leading companies in the global infrastructure markets by wide investments and creative endeavor.

NAME OF FIRM	SAMBO ENGINEERING CO., LTD.		
ADDRESS	30, Wiryeseong-daero 16-gil, Songpa-gu, Seoul, Korea		
COUNTRY OF ORIGIN	The Republic of Korea		
REPRESENTATIVE	Mr. Du Hwa Lee		
CONTACT PERSON	Mr. Nam Sik Park		
HEAD OFFICE	TEL. +82-2-3433-3000	FAX	+82-2-3433-3200
E-MAIL ADDRESS	pns1000@nate.com		
ESTABLISHED DATE	July 7, 1993		
CAPITAL	US\$26,341,980 (US\$1= ₩1,115.30)		
PERMANENT EMPLOYEES	517 Staff		

➤ **Professional Staff**

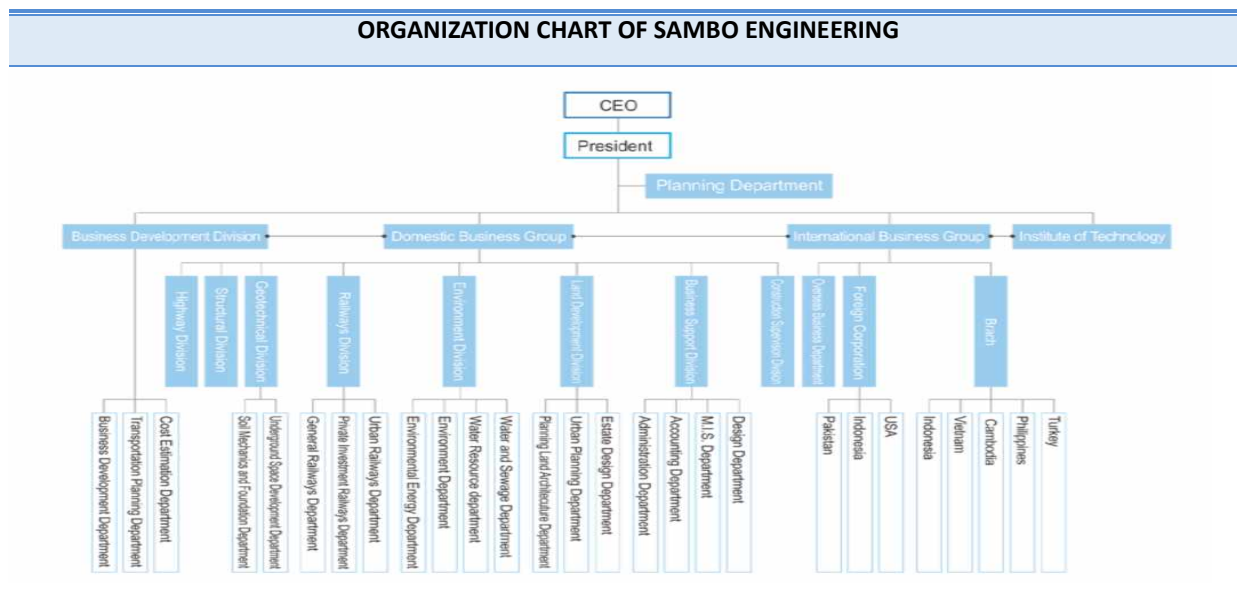
Sambo Engineering’s staff is comprised of experienced professional engineers and specialists with training in virtually every applicable discipline including:





a) Organization

SAMBO Engineering has 1 division, 2 Business Group, and 1 Institute of Technology. The detailed organization chart is as shown below.



b) Financial Status

Summary of Financial Statement

(UNIT: 1,000 US\$)

This Table summarizes the financial information of SAMBO ENGINEERING Co., Ltd for the three (3) years. The detailed description of the financial information is presented in the following attachments.

Classifications	Amount (SAMBO ENGINEERING CO., LTD.)		
	2014	2015	2016
Current Assets	24,991	22,675	23,055
- Quick Asset	24,416	22,081	22,438
Non-current Assets	17,315	14,861	14,705
Total of Assets	42,306	37,536	37,760
Current Liabilities	10,744	7,019	6,747
Long-Term Liabilities	1,914	-	-
Total of Liabilities	15,289	13,185	13,424
Total of Stockholder's Equity	2,919	2,590	2,526
Total Liabilities and Stockholder's Equity	-	-	-
Sales	36,941	36,417	42,489
Operating Income (Annual Gross Profit)	3,963	6,165	7,048
Net Income	128	398	586
Net Worth (Assets-Liabilities)	27,017	24,351	24,335



■ **Company Track Records**

SAMBO ENGINEERING's BTO/BTL Project List

No.	Purpose	Project Title	Type	Client	Project Period	Size
1	Road	Seoul-Chuncheon Expressway Construction Project	BTO	MOLIT (Ministry of Land, Infrastructure, and Transport)	Aug. 2004~ Aug, 2009	L=61.4km, B=23.4m
2	Road	4th Daegu Outer Ring Road (Sangin-Bummul) Construction Project	BTO	MOLIT	Dec. 2007~ Dec. 2012	L=10.4km, B=35~60m
3	Road	2nd Yeongdong Expressway (Hwangju-Wonju) Construction Project	BTO	MOLIT	Nov. 2011 Nov. 2016	L=56.9km, B=23.4m
4	Road	2nd Geongin Connected Expressway (Anyang-Seongnam) Construction Project.	BTO	MOLIT	Sep. 2012~ Sep. 2017	L=21.8km, B=23.4~30.6m
5	Road	2nd Busan New Port Connector Expressway Construction Project	BTO	MOLIT	Jul. 2012~ Jan. 2017	L=15.2km, B=23.4m
6	Road	Seoul Jemulpo Tunnel Construction Project	BTO	SEOUL METROPOLITAN GOVERNMENT	Sep. 2015~ Aug. 2020	L=7.55km, B=18.5m
7	Road	Seodaegu KTX Complex Transfer Center Development Project	BTO	BUSAN METROPOLITAN CITY	Feb. 2019~ Feb. 2024	L=9.55km, B=20.0m
8	Road	Western Region Expressway Construction Project	BTO	MOLIT	Jun. 2012~ Jun. 2017	L=44.6km, B=30.6m
9	Road	Guri-Pocheon Expressway Lot 6, Rest Area for Drowsy Drivers	BTO	MOLIT	Jun. 2018~ Jun. 2032	L=144.8km, B=23.4m
10	Road	2nd Ring Road around Seoul Metropolitan (Icheon-Osan) Construction Project	BTO	MOLIT	Dec. 2016~ Dec. 2021	L=31.2km, B=23.4m -



③ General Description of HWASHIN

a) General Information

HWASHIN Engineering is a global leader with 24 years of experience in the full spectrum of construction consultancy services including Project Management, Construction Management, Supervision, Design, Engineering and other services. By successfully completing various projects, HWASHIN has gained a sound reputation as a total solution provider for a construction project

NAME OF FIRM	HWASHIN Engineering CO., LTD.		
ADDRESS	#307, 250, Hagui-ro, Dongan-gu, Anyang-si, Gyeonggi-do		
COUNTRY OF ORIGIN	The Republic of Korea		
CONTACT PERSON	Mr. Jung Yeon Lee		
HEAD OFFICE	TEL. +82-31-596-6129	FAX	+82-31-596-6197
E-MAIL ADDRESS	Ljy6807@nate.com		
ESTABLISHED DATE	Oct. 1, 1993		
INCORPORATION DATE	Oct. 15, 1993		
CAPITAL	US\$5,003,688 (US\$1= ₩1,115.30)		
PERMANENT EMPLOYEES	198 Staff		

➤ Professional Staff

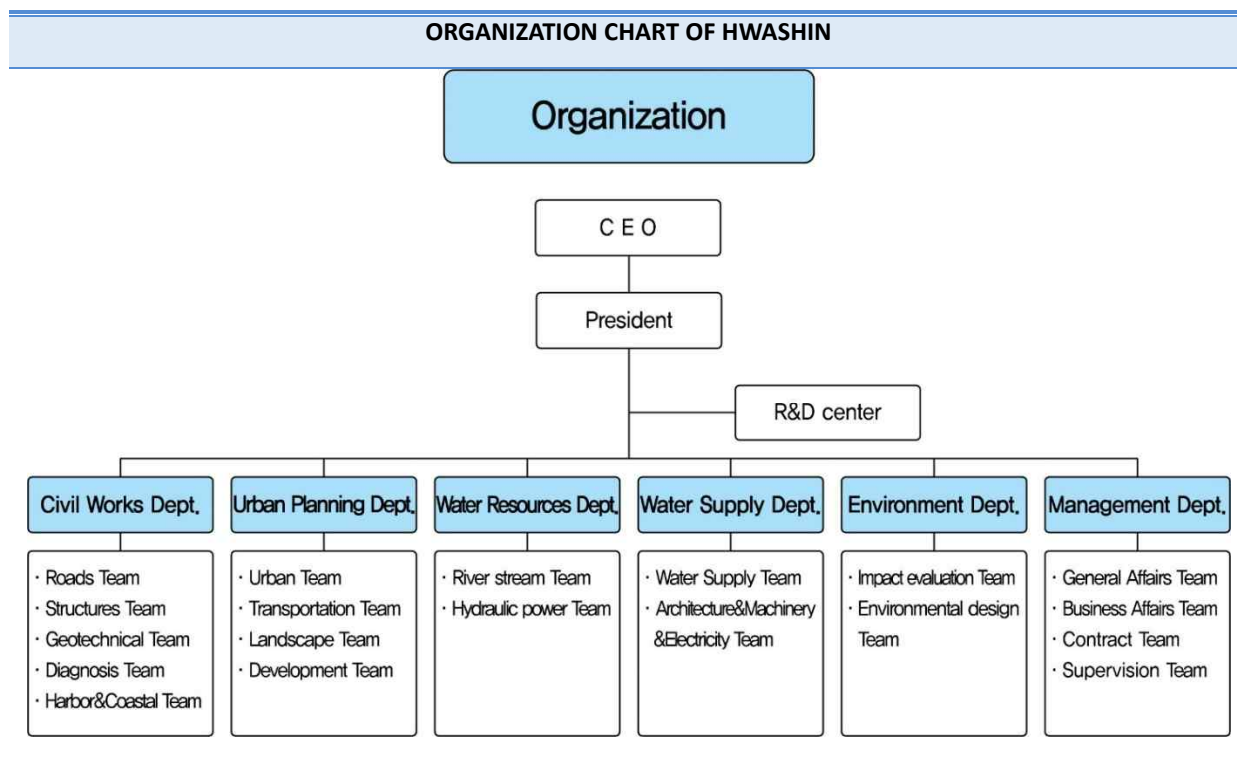
HWASHIN's staff is comprised of experienced professional engineers and specialists with training in virtually every applicable discipline including:

- ✓ Project Managers
- ✓ Construction Managers
- ✓ Contract Administrators
- ✓ Quantity Surveyors
- ✓ Architects
- ✓ Civil Engineers
- ✓ SMEP Engineers
- ✓ Field Inspectors
- ✓ Financial Analysts
- ✓ Information System Engineers
- ✓ Quality Assurance & Control Experts
- ✓ Safety Experts
- ✓ Schedulers
- ✓ Value Engineers



b) Organization

HWASHIN have 6 Department. Main Department is Civil Works, Urban Planning, Water Resources, Water Supply and Environment Department. In addition, there are 1 R&D center and Management Department which provides technical support to the above-mentioned Department.



c) INNO-BIZ Certificate

INNO-BIZ is the core strategy of Small & Medium Business Administration and is the Korea governmental project to select the technical competitiveness and provable future growth potential, and to support them so as to become global enterprises that will lead 21st century's Korean economy through government's integrate support of the strategies of small and medium enterprises in the range preparation of investment funds, management consulting, and overseas technical certification, as well as support with strategic funding, INNO-BIZ Enterprises include those that will lead our company in the future as the technology-innovation type, small and medium enterprises that have technological power or future growth provability, HWASHIN was certified for INNO-BIZ in 20



d) Financial Status

Summary of Financial Statement

(UNIT: 1,000 US\$)

This Table summarizes the financial information of HWASHIN ENGINEERING Co., Ltd for the three (3) years. The detailed description of the financial information is presented in the following attachments.

Classifications	Amount (HWASHIN Engineering Co., Ltd.)		
	2014	2015	2016
Current Assets	3,866	2,147	2,530
- Quick Asset	3,866	2,147	2,530
Non-current Assets	3,133	5,079	4,455
Total of Assets	6,999	7,225	6,985
Current Liabilities	103	2,205	1,847
Long-Term Liabilities	2,201	1,656	1,615
Total of Liabilities	2,304	3,861	3,462
Total of Stockholder's Equity	4,695	3,364	3,523
Total Liabilities and Stockholder's Equity	6,999	7,225	6,985
Sales	12,795	13,813	14,100
Operating Income (Annual Gross Profit)	294	1,796	588
Net Income	579	1,879	534
Net Worth (Assets-Liabilities)	4,695	3,364	3,523



■ **Company Track Records**

Hwashin ENGINEERING's BTO/BTL Project List

No.	Purpose	Project Title	Type	Client	Project Period	Size
1	Water	Preliminary plan & Detailed design (BTL) for sewer repair project of the HongCheon county	BTL	Korea Development Corporation	Jul.2007 ~Mar.2008	-New Sewer pipe or improvement: L=72.26km - Drainage: 2,743 households - Manhole pumping station: 7 place
2	Water	Design (BTL) for sewer repair project of the Boryeong city, 2007	BTL	Korea Development Corporation	Jul.2007 ~Sep.2007	- New Sewer pipe or improvement: L=64.79km - Drainage: 3,602 households - Upkeeping : 1 set
3	Water	Preliminary plan& prior environmental review & feasibility study & Private Finance Initiative of Value for Money (BTL)for sewer repair project of the Second Zone(Wonju City, Boryeong city, Seocheon county)	BTL	Korea Environment Corporation	Mar.2007 ~ Jul.2007	▪ Wonju City - New Sewer pipe or improvement: L=144.77km - Drainage: 8,632 households - Manhole pumping station: 4 place ▪ Boryeong city - New Sewer pipe or improvement: L=64.65km - Drainage: 3,630 households - Manhole pumping station: 2 place ▪ Seocheon county - New Sewer pipe or improvement: L=37.39km - Drainage: 2.434 households - Manhole pumping station: 10 place
4	Water	Preliminary plan(BTL) for sewer repair project of Gangneung city	BTL	Hyundai Engineering& Construction	Dec. 2006 ~Apr.2007	- New Sewer pipe or improvement: L=51.14km - Drainage: 3,422 households - Manhole pumping station: 42 place - Mediation pumping station: 1 place - Upkeeping: 2set



■ Curriculum Vitae of PM (SAMOOCM)

SAMOO C.M.

1. Curriculum Vitae

- ❖ Surname, Name : Lee Sang-chul
- ❖ Year & Place of Birth : 16.01.1971 / Seoul, KOREA
- ❖ Qualifications : Civil Engineering Professional
Road Sector Professional
Quality Management Professional
P3 Project Professional
- ❖ Licensed : Survey and Geospatial Engineer 1st Class
Construction Material Test Engineer 2nd Class
Construction Manager Professional
Development Professional



A copy of certificate



SAMOO C.M.

2. Educational Background

- ❖ **University of SEOUL Graduate School** (International School of Urban Sciences)
 - Department of Global Construction (Master of International Urban Sciences 2017)
- ❖ **Hanyang University Graduate School**
 - International Construction Professional Course (2014)
- ❖ **Hankyong National University Graduate School**
 - Bachelor Degree of Civil Engineering Master (2010~2012)
- ❖ **Hankyong National University**
 - Bachelor Degree of Civil Engineering (1998~1996)
- ❖ **Yeonsung University**
 - Department of Civil Engineering (1991~1989)

A copy of certificate





SAMOO C.M.



3. Professional Background

- ❖ **SAMOO CM ARCHITECTS & ENGINEERS**
- Infrastructure Business Team Associate Principal (2017.05-Present)
- ❖ **KOREA Development co.,Ltd**
- SOC Team, Team Manager (2015.7 - 2017.05)
- ❖ **KOLON Water & Energy Co., Ltd**
- SOC Team, Team Manager (2015.1 - 2015.07)
- ❖ **Korea Association of Construction Engineering & Management**
- Construction Design Mount (2013.8 - 2014.12.)
- ❖ **HANSHIN Engineering & Construction Co.,Ltd.**
- Civil Business Dept(SOC), Team Manager (2012.11 - 2006.06.)
- ❖ **DALIN Engineering Co., Ltd**
- Design Team Manager (2006.06. - 2004.06.)
- ❖ **SEOYEONG Engineering Co., Ltd.**
- Design Team Manager (2004.06. - 1994.01.)

SAMOO C.M.



4. Project Experiences (Project Management Part 1)

Period	Description
July 2015~Apr 2017	Team Manager for Construction of Suwon - Kwangmyong Expressway private investment projects (BTO): Ministry of Land Transportation. Korea (PPP)
July 2015~Apr 2017	Team Manager for Construction of Kwangmyong - Seoul Expressway private investment projects (BTO): Ministry of Land Transportation. Korea (PPP)
July 2015~Apr 2017	Team Manager for Construction of Wuyi - New Urban Railway (Light Rail) private investment projects (BTO): Seoul. Korea (PPP)
July 2015~Apr 2017	Team Manager for Construction of Siheung City BangSan Sewage Facilities private investment projects (BTO) : Kyunggi, Korea (PPP)
Nov 2015~Apr 2017	Team Manager for Construction of Siheung City sewer line maintenance private investment projects (BTL) : Kyunggi, Korea (PPP)



SAMOO C.M.



4. Project Experiences (Project Management Part 2)

Period	Description
Nov 2015~At Present	Team Manager for Construction of Jingeon Sewage Treatment Plant Expansion (secondary) private investment projects (BTO): Kyunggi, Korea (PPP)
Nov 2011~Nov 2012	Team Manager for Construction of Galsaman Industrial Cluster of Shipbuilding Private Investment Project : Hadong Korea (PF)
Nov 2011~Nov 2012	Team Manager for Construction of Istanbul Strait Road Crossing Private Investment Project : Turkey (PPP)
Nov 2006~Nov 2012	Team Manager for Construction of Giheung~Yongin City Express Road Private Investment Project : Kyunggi, Korea (PPP)
Nov 2009~May 2012	Team Manager for Construction of Sinrimseon LRT Private Investment Project : Seoul, Korea (PPP)
Sep 2008~Dec 2010	Team Manager for Construction of Hanam~Yangpyeong City Express Road Private Investment Project : Kyunggi, Korea (PPP)

SAMOO C.M.



5. Project Experiences (Engineering Part 1.)

Period	Description
Apr 2005~Jul 2006	Planning & Design Manager for Construction of private investment the 2 Yongdong Expressway Feasibility Study : Samsung
Feb 2004~Apr 2005	Planning & Design Manager for Construction of Incheon 2nd Yeonyukgyo Link Road:preliminary design for Sector 1 : Korea Expressway Corporation
Nov 2002~Jun 2004	Planning & Design Engineer for Construction of Choncheon-Yangyang Expressway: Donghongcheon - Yangyang sector : Korea Expressway Corporation
Jun 2002~Jan 2004	Planning & Design Engineer for Roads long-term plan and master plan : SengNam Kyunggi, Korea
Feb 2002~Jun 2002	Planning & Design Engineer for Construction of Sangju-Yeongchun Expressway Feasibility Study : Korea



SAMOO C.M.



5. Project Experiences (Engineering Part 2.)

Period	Description
Oct 2000~Dec 2002	Planning & Design Engineer for Construction of Mokpo-Gwangyang Expressway : Korea Expressway Corporation
Jun 1999~Mar 2000	Planning & Design Engineer for Construction of National Highway Neungdong tunnel expansion project Detailed Design : Korea
Dec 1997~Dec 1998	Planning & Design Engineer for Construction of Seohaean Expressway : Gunsan-Hampyeong sector, Korea Expressway Corporation
Jul 1995~Dec 1996	Planning & Design Engineer for Construction of Jungang Expressway: Yeongju-Jecheon sector : Korea Expressway Corporation
Jan 1994~Jul 1995	Planning & Design Engineer for Construction of Seoul Outer Ring Expressway, Sector 4 : Korea Expressway Corporation



Question 2. What would be the benefits and risks to MDOT entering a P3 agreement for congestion relief improvements? What risks do you believe would best be retained by MDOT and what risks would be best transferred to the private sector? Please explain your reasoning.

■ Strategic Direction for Private Investment Project

- ① BTO (Build-Transfer-Operate) method: The ownership of the facility belongs to the state of Maryland at the same time as the completion of the social infrastructures (new construction, expansion, improvement), and the method recognizing facility management operation rights for certain period to project implementer.
- ② BTL (Build-Transfer-Lease) method: At the same time as the completion of the social infrastructures (new construction, expansion, improvement), ownership of the facility belongs to Maryland. Also, the facility management operation rights will be recognized for certain period to project implementer. However, state of Maryland shall lease for use/profit during the period defined in the agreement.
- ③ BOT (Build-Operate-Transfer) method: Ownership of the facility is recognized by the project implementer for a certain period after the completion of the infrastructure (new, expanded, and improved), and the ownership of the facility belongs to Maryland at the expiration of the period.
- ④ BOO (Build-Own-Operate) method: Along with the completion of social infrastructures (new construction, expansion, improvement) and the method that the ownership of the facility is recognized by the project implementer
- ⑤ BLT (Build-Lease-Transfer) method: When the project implementer completes a social infrastructure (new establishment, expansion, improvement), lease it to another person for a certain period and transfers the facility to Maryland after the end of lease term.

■ Profit

1) MDOT:

- ① It is possible to reduce logistics costs and provide high-quality traffic services to road users by construction and providing automobile exclusive road which is a social overhead capital.
- ② With private capital and creativity, it is possible to shorten the time due to the timely input of budget, so that high-quality transportation infrastructure can be constructed quickly with minimum cost.
- ③ It is possible to minimize financial spending of Maryland State Government by the input of private capital. Also, it is possible for effective SOC project management.
- ④ As SOC facility input of private capital, it is anticipated to vitalize investment and create various jobs



2) Private Business Partner:

- ① It provides total services for planning, design, construction to maintenance and it can generate stable and long-term profits in accordance with the agreement with the state of Maryland.
- ② Stable profit generation within the terms of the agreement and active application of new method/new technology is possible, so technical know-how can be accumulated

■ Risk Factor

1) MDOT:

- ① There is a need for a specialized agency to manage private investment projects, and there is a risk of disputes with private implementers when the traffic demand of new toll roads is small.
- ② If the predicted traffic volume for a new road is insufficient, the increase in toll charges will inevitably lead to the complaints of toll road users on the toll increase, then the project progress may not be smooth if there is no provision for the profit guarantee of the private project.
- ③ Due to the construction of toll roads, there is concern about the traffic civil complaints of existing road users and environment/traffic complaints may occur when construction and operation are expected.

2) Private Business Partner:

- ① There exists a risk regarding planning, design, construction, O&M, and PF during the early stage. Also, if the problem occurs due to low demand of newly built tolled roads, equity can occur as a sunk cost.
- ② If the revenue of private business partners by project changes due to forecasts such as profit of private business partner is lower than the agreement standard, further negotiation with MDOT is necessary.

Question 3. What, if any, advantages will MDOT potentially gain by entering an agreement in which operations and maintenance and lifecycle responsibility and/or traffic revenue risk are transferred to the private section? How do you assess the likely magnitude of such advantages? What are the potential offsetting disadvantages?

■ Scale of Profit

- ① The PPP project is a structure in which a private business partner is responsible for design, construction, and management/operation of the roads, and collecting fees from road users and earning profits. Thus, the state of Maryland can manage the facility with the minimum organization.



■ Potential Offsetting Disadvantages

- ① As many obligations are imposed on private business partners, much of the authority on the business is transferred to private business partners, which can limit the rights and activities regarding the corresponding facilities when operating the roads.
- ② In the event of a bankruptcy of a private business partner due to low profitability, relocation of the poor facility can occur, and it can remain as MDOT's risk, such as payment upon termination.

Question 4. Would it be advantageous for MDOT to transfer the operations and maintenance and lifecycle responsibility for the entire freeway or just the added congestion relief improvements? What would be the advantages and disadvantages of transferring the operations and maintenance and lifecycle responsibility for the entire freeway?

■ Strength

- ① Integrated operation management enables efficient and economical operation
- ② No confusion between users and relevant organizations
- ③ Possible to reduce the budget required for MDOT's operation

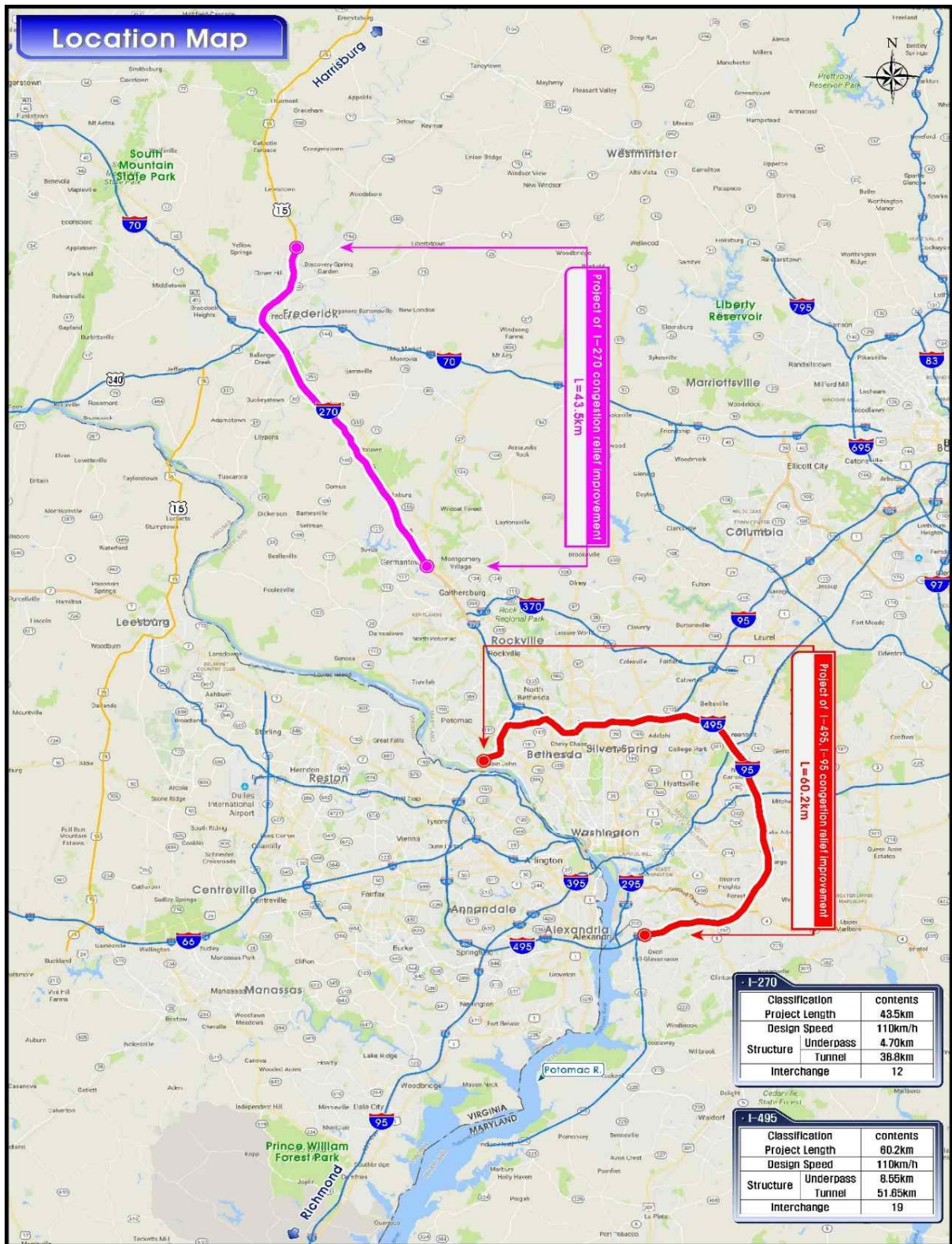
■ Weakness

- ① Difficulty in actively handling when an operational problem or a user's civil complaint occurs
- ② As private investment costs rise, financial aid or project profits may fall
- ③ In the event of a road accident such as an accident of a road user, it is necessary to maintain the integrated management of the private business partner operation system and the Maryland state operation system.

Question 5. Would it be feasible to have a single solicitation for both corridors? If not, would you recommend any specific phasing for the solicitations including the corridor(s) and limits and why? What would your recommendation be for staggering multiple solicitations and why?

- ① This project is a large-scale project for the new medium long-range road users. Although pushing forward with the project as a single project for two corridors (I-270, I-495/I-95), by separating project implementer and inducing competition during future construction and operation, it is rational to induce achievement of low construction cost, high-quality road facility, and management operation.
- ② The location map of the two corridors (I-270 I-495 / I-95) and the approximate construction cost of the route map are as follow

■ Location Map





■ **Route Map (I-495 / I-95)**



■ Maryland I-495/I-270 Construction Cost Review

① Total Construction Cost Estimation

December 07, 2017

Category		I-495	I-270	Note
Project Length (km)		60.2	43.5	Southbound basis
Major Structures (km)	Tunnel	51.65		Southbound basis
	underpass	8.55	4.7	
	intersection	19	12	
	Highway Expansion	-	38.8	
Direct construction cost (\100million)		39,428	12,436	
Total Construction Cost (\100million)		51,256	16,166	miscellaneous expense 30%
Operation Cost (\100million)		12,642	9,135	if operating for 30 years

- ※ 1) Construction Cost Estimation Basis: It was estimated based on the similar case of this project route, and details can be referred to #Appendix (Comparison of the construction cost of the deep underground road in the downtown area in Korea).
- 2) The above-mentioned construction cost is based on deep tunnel's underground construction cost in the downtown of Korea. It can be changed based on the detailed plan during highway P3 project of Maryland's I-495/I-270 in the future.

■ Appendix (Korea Downtown Deep Underground Road Construction Cost Comparison Chart)

Category	A-private business	B-private business	Seoul Jemulpo tunnel	Mandeok ~ Centum	Seobu Expressway Underground	Dongbu expressway underground basic plan	
Push Forward Status	Submission of initial proposal	Eligibility under evaluation	Under Construction	Implementation agreement in preparation	Under Construction	1 Section	2 Section
Proposed Length	L=5.7km	L=13.2km	L=7.53km	L=9.55km	L=10.33km	L=10.1km	L=6.6km
Number of lanes & Cross width	4 lanes 2@10.0m	4 lanes 2@10.7m	4 lanes (compact car only) 2@9.25m	4 lanes 2@9.0m	4 lanes (compact car only) 2@9.25m	6 lanes (compact car only) 3@12.0m	4 lanes (compact car only) 2@9.0m
Direct Construction cost (\100 million)	2,792	5,828	3,854	4,560	4,432	7,517	4,207
Construction cost per Km (\100 million)	637	498	665	621	558	968	829
All vehicle type conversion	637	498	731	621	613	1,064	911



■ **Tunnel Construction Cost Comparison Chart by Lanes**

Category	Cross section ratio	Average construction cost per km	Note
1 lane road parallel tunnel	0.88	\60 billion	Inflow/Outflow Facility Application
2 lanes road parallel tunnel	1	\68.2 billion	Main Line Application
3 lanes road parallel tunnel	1.18	\80.4 billion	
4 lanes parallel tunnel	1.82	\124.1 billion	

■ **Private Investment Cost Estimation**

① **Key Assumption Criteria**

Category	Key Conditions
Analysis Basis Period	January 1 st 2017
Project Preparation Period	January 1, 2019 ~ December 31, 2019 (12 months)
Construction Period	January 1, 2020 ~ December 31, 2024 (60 months)
Inflation Rate	1.32% (Average of U.S. Consumer Price Increase Rate for past 5 years)
Finance Procurement Structure	Equity 20%, borrowed capital 80%
Interest Rate	5.00%



② Total Investment Cost Estimation

(I-495)

Category	Value Amount (million KRW)	Value Amount (1,000 USD)	Note
1. Survey Cost	36,713	33,806	20% of Design Cost
2. Design Cost	183,565	169,029	Apply 1.4 times engineering business compensation standard
3. Construction Cost	5,125,600	4,719,705	
4. Additional Cost	236,407	217,686	
Construction Supervision Cost	80,671	74,282	Apply 1.4 times "engineering business compensation standard"
Construction Insurance Rate	51,256	47,197	1.0% of Construction Cost
Financial Fee	92,691	85,351	1.5% of loan procurement amount
Other additional cost	11,789	10,855	
5. Business Reserve	102,512	94,394	2.0% of Construction Cost
6. Total Project Cost (Σ1~5)	5,684,797	5,234,620	Total Amount of Invariable Project Cost
7. Price Fluctuation Cost	404,018	372,024	Apply inflation rate of 1.32 %
8. Construction Interest	483,170	444,908	Apply interest rate of 5.0%
9. Total Investment Cost (Σ6~8)	6,571,985	6,051,552	



(I-270)

Category	Value Amount (million KRW)	Value Amount (1,000 USD)	Note
1. Survey Cost	11,676	10,751	20% of Design Cost
2. Design Cost	58,378	53,755	Apply 1.4 times "engineering business compensation standard"
3. Construction Cost	1,616,600	1,488,582	
4. Additional Cost	75,023	69,082	
Construction Supervision Cost	25,803	23,760	Apply 1.4 times "engineering business compensation standard"
Construction Insurance Rate	16,166	14,886	1.0% of Construction Cost
Financial Fee	29,335	27,012	1.5% of loan procurement amount
Other Additional Cost	3,718	3,424	
5. Business Reserve	32,332	29,772	2.0% of Construction Cost
6. Total Project Cost (Σ1~5)	1,794,008	1,651,941	Total Amount of Invariable Project Cost
7. Price Fluctuation Cost	127,477	117,382	Apply price inflation of 1.32%
8. Construction Interest	152,524	140,446	Apply interest rate of 5.0%
9. Total Investment Cost (Σ6~8)	2,074,009	1,909,769	



3.2 Project Development

Question 1. Do you believe your firm would be interested in submitting a detailed proposal for the development of any of the congestion relief improvements? Are there any particular concerns that may prevent your firm from getting engaged in the project development? How might these concerns be resolved?

■ Interest regarding submission of detailed proposal

- ① Our consortium has prepared this response to RFI with strong intention to actively participate in the basic plan and consulting process in the state of Maryland. Also, when preparing the detailed proposal, we are planning to submit a detailed proposal by forming a consortium with top Korean contractors.
- ② The Korean consortium responding to this RFI has performed several similar projects in the past and has sufficient know-how so that it can provide high-quality engineering services when conducting consulting projects such as basic plan, etc. Also, in the future, we plan to organize a consortium with top contractors in Korea to submit detailed proposals.

■ Concerns and Solutions for Project Participation

- ① This project can be divided into “government announced project” and “private proposal project”. Since it is a mega project with about \$ 9 billion, the most reasonable way to announce the P3 project is after establishing the basic plan in the state of Maryland, proceed with the “government announced project” in which many companies participate and compete.
- ② Our consortium will actively participate in the basic plan and consult services if needed in the state of Maryland.

[Project Promotion Example]

1) Pushing Forward as “Government Announced Project”

- ① For a project that is acknowledged as efficient to push forward as private investment method, in principle Maryland state shall establish a pre-plan and push forward as “government announced project”.
- ② Maryland state shall push forward it as a “government announced project” by considering private appropriateness judgment such as financial condition, usage level, and other policy direction, etc. regarding a financial project that can be pushed forward as private investment project during feasibility study stage.



2) Pushing Forward as “Private Proposal Project”

- ① Private investment project and determine whether to appoint/push forward the project.
- ② Cost and benefit analysis should be carried out to secure feasibility for the national economy.
- ③ It should be possible to reduce the burden on the government and raise the quality of service rather than the private proposal and the private investment implementation alternative.

Question 2 At what stage of the NEPA and project development process would it be most beneficial to issue an RFQ: after the establishment of the purpose and need, after determination of alternatives retained for detailed study, after selection of an MDOT preferred an alternative, or after approval of the environmental document? At what stage would it be most beneficial to issue an RFP? Please discuss your reasoning.

■ RFQ Issue Period

① If pushing forward as “Government Announced Project”

- RFQ Issue Period: After establishing a basic plan by the Maryland state, around June 2019.
- Basic Plan Establishment Period (12 months, June 2018 ~ June 2019)

Collect resident’s opinions (3 times), site surveying (1 month), geological surveying (3 months), basic plan establishment (8 months), Traffic Volume Verification (1 month)

② If pushing forward as “Private Proposal Project”

- Private business partner preparing proposal and submission period (6 months)
- Private business partner’s proposal review period (6 months)
- Third Party Competition Announcement & Evaluation Period (10 months)

■ RFP Issue Period

① If pushing forward as “Government Announced Project”

- After completion of basic plan establishment

② If Pushing Forward with Private Proposal Project

- After completion of reviewing proposal of private sector



Question 3. What are the critical path items for the solicitation for these improvements and why?

■ Critical Path and Reason

① If pushing forward for “government announced project”

- RFQ issue period: After establishing basic plan in Maryland state, around June 2019
- Basic Plan Establishment Period (12 months, June 2018 ~ June 2019)
Collecting opinions from residents (3 times), site surveying (1 month), geological surveying (3 months), basic plan establishment (8 months), Traffic Volume Verification (1 month)

② If pushing forward for “private proposal project”

- Private business operator preparing proposal and submission period (6 months)
- Review period for Private Business Operator’s Proposal (6 months)
- Third party competition announcement & evaluation period (10 months)

Question 4. What is the minimum amount of time that your firm would require to develop and submit a response after the issuance of a potential RFQ?

① If pushing forward as “government announced project”

- RFQ issue period: After establishing basic plan in Maryland, around June 2019
- Basic Plan Establishment Period (12 months, June 2018 ~ June 2019)
Collection of resident’s opinions (3 times), site surveying (1 month), geological survey (3 months), Basic Plan Establishment (8 months), traffic volume verification (1 month)

② If pushing forward as “private proposal project”

- Private business partner prepares proposal and submission period (6 months)
- Proposal review period of private business partner (6 months)
- Third Party Competition Announcement & Evaluation Period (10 months)

Question 5. What is the minimum amount of time that your firm would require to develop and submit a detailed proposal after the issuance of a potential RFP? 6 months

- ① Prepare basic design drawings, and proposal (technical proposal, financial proposal),
- ② Form consortium (Contractor, Bank, and Design Firm, etc.)



Question 6. What information would your firm need to prepare a response to a potential RFP? What information should MDOT, the offeror, or others provide?

- ① Private Investment Law & Support System in the Maryland State
- ② Design standard, unit cost calculation standard, etc.
- ③ Traffic volume of major points in expressway I-495/I-95 and I-270 (AADT)
- ④ Geological survey result & test data of key points in I-495/I-95, and I-270
- ⑤ Various index to calculate construction cost (equipment cost, gasoline price, labor cost, and various material cost, etc.)

Question 7. What would you consider a reasonable stipend payment for unsuccessful proposers responding to a potential RFP? What information should MDOT, the offeror, or others provide?

■ Cost Bearing of RFP preparation in case of Failure in bidding

- ① The Maryland State will pay the “proposal cost compensation” within the Maryland State budget. It shall be up to the following rates for the equivalent of the basic design costs for the costs incurred before the RFP preparation and failure in bidding. The VAT shall be included in this amount, so VAT shall not be paid separately.
 - if failure in bidder and proposer is only 1 firm: 45% of basic design cost
 - if failure in bidder and proposer is 2 firms: In the order of the top scores, 35% and 25% of basic design cost for each firm
 - if failure in bidder and proposer is more than 2 firms: In the order of the top scores, 35%, 25% and 20% of basic design cost for each firm
 - Basic design cost: amount which applied basic design rate amount to estimated construction cost (Basic Design Rate: 2.0% of estimate construction cost)
- ② Payment Process
 - Maryland state will notify in writing of the period for payment when incurred costs prior to preparing RFP, and the drop out will be paid by writing an application including all documents.

Question 8. Would it be more beneficial for right-of-way acquisition activities to be transferred to the developer or should MDOT retain that risk? Please discuss your reasoning

- ① It is reasonable to implement Land compensation authorization by Maryland State.
- ② It is very difficult for the private sector to carry out projects due to problems such as suspension of construction due to civil complaints and an increase in land compensation amount



3.3 Technical Challenges

Question 1. Based on your experience in the development of similar projects and characteristics of the I-495/I-95 and I-270 corridors, please explain the technical challenges, including minimization of right-of-way impacts, to providing congestion relief improvements. Please provide any recommendations for mitigating or overcoming those challenges that you would be willing to share.

- ① Future traffic demand analysis to improve traffic congestion of existing roads
- ② Optimal entry/exit facility selection and plan considering nearby traffic status
- ③ Road alignment plan considering design standard & driving safety
- ④ Establishment of alignment plan to minimize contact with nearby obstacles
- ⑤ Establishment of construction management plan to minimize environment damage during construction and operation
- ⑥ Establishment of ventilation & fire protection measure due to construction of underground road
- ⑦ Establishment of LCC plan to minimize construction cost and O&M cost

Question 2. Are there recommendations that you may be willing to share concerning the project scope or development strategies to reduce the upfront capital costs and/or the lifecycle costs of potential corridor congestion relief improvements?

- ① The entire section of this project is planned as underground road, and the construction cost is calculated as approximately \$ 9 billion. The construction cost is high because it is planned as an underground highway. However, it is believed that utilization of the underground space will increase the efficiency of land use, minimize environmental and civil complaints, and greatly reduce land compensation cost.
- ② In addition, it is possible to reduce the construction cost and operation cost by actively introducing automated toll collecting system, new technology, and a new method. Also, by integrating the new technology and the advanced IT technology.
- ③ As a private investment project, this project shall establish an aggressive operation plan for more efficient manpower management and assign optimal O&M office. By establishing management system considering LCC cycle, it is possible to establish a plan to secure efficient and economic feasibility of required fund required for operation.



Question 3. Please explain any technical solutions that you may be willing to share that may enhance the development of the potential congestion relief improvements. Identify risks associated with the solutions and, if possible, discuss estimated cost of the solutions.

- ① Occurrence of an unexpected situation other than surveying (geological surveying, surveying, cultural assets, and pre-disaster, etc.)
 - Minimize unexpected situations by establishing a detailed survey plan during the design/construction phase and operate a dedicated team to respond promptly when an unexpected situation occurs
- ② Appearance of unconfirmed obstacles
 - Minimize unconfirmed obstacle occurrence by thorough implementation of obstacle investigation such as a prior devoted agreement with relevant institutions & GPR Exploration, etc.
- ③ Civil complaints caused by the installation of shaft for ventilation/disaster prevention when underground road construction
 - Establish ventilation/disaster prevention plan to minimize the influence of surrounding area and selection of shaft location
- ④ Possible traffic effects that can occur when connecting to existing IC
 - Calculate separation distance to minimize existing traffic flow and establish additional lane plan

3.4 Contract Structure

Question 1. What is your recommended approach for financing the capital cost of potential congestion relief improvements?

- ① Maintain free usage for existing road's users, and it is appropriate to push forward as BOT/BTO method which operates as a tolled road for new road parts.
- ② It is expected that the size of private investment will be decided according to the amount of government financial support such as aid and financial resources of the transportation infrastructure from the central government. If the demand for the traffic is less than the total investment cost, it may be required to guarantee operational income of certain level or additional financial aid (construction subsidy, etc.)
- ③ In general, the size of general equities is 15%, and procurement of debt is divided into prior order and subordination. In the case of subordinated borrowings, it is often reflected to resolve the equity holders' Dividend Trap (dividend uncertainty), which is often seen as part of the Equity in P3 projects.



Question 2. Should MDOT set a concession term or allow proposers to establish a concession term as part of the response to a potential RFP? IF MDOT were to set the concession term, what is the reasonable concession term and why?

- ① The understanding period of this project will be determined according to the size of the investment cost, the amount of government financial support, the level of toll that the user can bear, the level of operating expenses, and project rate of return, etc.
- ② 30 years for road project (excluding construction period)

Question 3. Are there any contract terms you would recommend, such as Alternative Technical Concepts, Alternative Financial Concepts, contract balancing, pre-proposers, maximize opportunities for innovation, maximize a concession payment to MDOT, or are key to obtaining competition? Please discuss the benefit and risks of the recommended contract terms.

- ① The duration of the contract in the private investment project is finalized according to the size of the investment cost, the level of the government financial support, toll, demand, the operation cost and the business rate of return calculated accordingly. Therefore, the optimal contract period needs to be discussed after these variables are determined to some extent.
- ② In the case of BOT/BTO method, it is exposed to the fluctuation risk of demand. Thus, the government needs to insert an article that can adjust the contract period to secure the rate of return in case of sudden change of city planning, change of surrounding environment that may affect roads. If there is no change in the traffic volume in the predicted demand model, there will be no change in the contract period since there will be no fluctuation in the business rate of return.
- ③ 30 years of road project (excluding construction period)

3.5 Miscellaneous

Question 1. Are there particular concerns with the information provided in this RFI? Please explain any concerns and provide any proposed solutions or mitigation to address those concerns.

- ① This consortium is a consulting firm affiliated with Korea. We have received source from Mr. Shawn Eum, a Maryland State Policy Advisor. We have completed the list of questions and submitting this RFI. Although Korea is a small country, we have many experiences and track records in private roads projects. And based on the previous track records, we have prepared the response to this RFI. We hope you equally consider our response to another consortium and we strongly hope to participate in future consulting work.



Question 2. Please provide any suggestion or comments on how MDOT can encourage participation by Minority Business Enterprise/Disadvantaged Business Enterprise firms and local workforce in the development of the congestion relief improvements.

- ① To encourage active involvement of SMEs in Maryland state by encouraging institutions such as Minority Business Development Agency (MBDA)'s Maryland office to help match appropriate SME firms to international firms with a strong track record and financing capabilities. Also, by giving bonus points for meeting the 30% of the mandatory SME participation requirements.

Question 3. What opportunities would you like to see for industry outreach related to these potential P3 opportunities?

- ① Push forward as "government announced project" to form consortium from various countries to induce competition. This will make possible to establish stable business structure.

Question 4. Please provide any additional comments or questions you may have related to the information in this RFI.



Appendix 1. As-Is Photos (I-495/I-270)

① As-Is photo (I-495)





② As-Is Photo (I-270)

