

Research Subaward Agreement - Amendment #2

Pass-Through Entity (PTE)		Subrecipient
Regents of the University of Michigan	Entity Name	CITY OF ANN ARBOR
3003 South State Street Ann Arbor, MI 48109-1287	Address including City, State, Zip+4 (Country, if non-US)	301 East Huron Street PO BOX 8647 Ann Arbor, MI 48107-8647
James Sayer	Principal Investigator	Luke Liu Russell Hanshue
PTE: Federal Award No: DTFH6115H00005	Amendment No: 02	Federal Awarding Agency: Transportation, Department of-Federal Highway Administration

Project Title: Maintain, Operate, and Sustain the Ann Arbor Test Environment.

Subaward Period of Performance: Pre-award spending: 03/25/2015 Start Date: May 11, 2015 End Date: May 10, 2018	Amount Funded this Action: \$34,417.⁰⁰ Cost-Share Obligated this Action: \$4,920.⁰⁰	Subaward No. 3003532118
Effective Date of Amendment: DOE	Total Amount of Federal Funds Obligated to Date: \$87,476. ⁰⁰ Subrecipient's Total Cost-Share obligation to Date: \$14,760. ⁰⁰	Subject to FFATA: [xx] Yes or [] No

Amendment(s) to Original Terms and Conditions

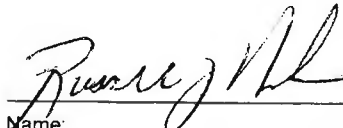
This Amendment revises the above-referenced Research Subaward Agreement as follows:

Action(s):

- The **Period of Performance End Date** is changed from May 10, 2017 to **May 10, 2018**.
- The **Amount Funded this Action** is increased by **\$34,417.⁰⁰**, from \$53,059.⁰⁰ to \$87,476.⁰⁰. The **Total Budget** is provided as **Exhibit A** to this Amendment, and this shall replace any previous versions. Distribution of this Increase is as follows:
 - ✓ \$26,193.⁰⁰ for "Total WA1: Operate and Maintain Test Environment", to be invoiced against 3003532118; and,
 - ✓ **\$8,224.⁰⁰** for "Total WA2: Upgrade Infrastructure & Security in Test Environment Operations", **to be invoiced against 3004424322 no later than 12/31/2017**. The source of this particular funding is from various Members; as such, Members have rights; refer to the terms and conditions of the **Mobility Transformation Center Membership agreement** provided as **Exhibit C** to this Amendment and incorporated into the Subaward Agreement.
- **Attachment 5, Statement of Work**, is revised to include the Scope of Work provided within **Exhibit B** to this Amendment.
- Subrecipient's **Cost-Share obligation** is increased by **\$4,920.⁰⁰**, from \$9,840.⁰⁰ to \$14,760.⁰⁰. The **Budget** for this Cost-Share obligation is as was provided and agreed upon within the initial Subaward Agreement.

-- All other terms and conditions of this Subcontract remain in full force and effect.

All other terms and conditions of this Subaward Agreement remain in full force and effect.

By an Authorized Official of PTE : <div style="font-size: 24pt; font-weight: bold;">Khaled J. Eid</div> <div style="font-size: 12pt; margin-top: 5px;"> Digitally signed by Khaled J. Eid DN: cn=Khaled J. Eid, o=University of Michigan, ou=Office of Contract Administration, email=keid@umich.edu, c=US Date: 2017.05.03 13:03:01 -04'00' </div> <div style="text-align: right; margin-top: 5px;"> _____ May 3, 2017 </div> <div style="margin-top: 5px;"> Name: Khaled Eid Title: Contract Administrator Senior </div>	By an Authorized Official of Subrecipient : <div style="text-align: center; font-size: 24pt; font-weight: bold;">  </div> <div style="text-align: right; margin-top: 5px;"> _____ 5/3/17 </div> <div style="margin-top: 5px;"> Name: Title: SOLUTIONS DELIVERY MGR. </div>
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CITY OF ANN ARBOR FEDERAL/MTC BUDGET
to University of Michigan Transportation Research Institute
for USDOT - Federal Highway Administration
"Maintain, Operate, and Sustain the Ann Arbor Test Environment"

TOTAL		Total WA1: Operate and Maintain Test Environment		Total WA2: Upgrade Infrastructure & Security in Test Environment Operations		WA3: Plan & Develop a Sustainable Operational Environment		WA4: Support Other Related Research Activities		TOTAL BUDGET 3/25/15 - 5/10/18		
		Hrs	Amt	Hrs	Amt	Hrs	Amt	Hrs	Amt	Hourly Rate	Hrs	Amt
Les Sipowski	Engineer	24	1,066	0	0	0	0	0	0	Varied	24	1,066
Jeremy Sype	Electrician	43	1,130	0	0	0	0	0	0	Varied	43	1,130
John Tomich	Electrician	43	1,211	0	0	0	0	0	0	Varied	43	1,211
Robert Medaugh	Electrician	43	1,307	0	0	0	0	0	0	Varied	43	1,307
Beth Nieman	Electrician	43	1,212	0	0	0	0	0	0	Varied	43	1,212
Dennis Fischer	Electrician	43	1,441	0	0	0	0	0	0	Varied	43	1,441
Terry Clark	Electrician	43	1,441	0	0	0	0	0	0	Varied	43	1,441
Tim Paquin	Electrician	43	1,441	0	0	0	0	0	0	Varied	43	1,441
Kevin Braun	Electrician	120	4,024	60	2,012	0	0	0	0	Varied	180	6,035
Stephen Longworth	Electrician	44	1,240	0	0	0	0	0	0	Varied	44	1,240
Russell Hanshue	Project Manager	35	1,704	4	195	0	0	0	0	Varied	39	1,898
Dave Harris	Network Administration	34	1,330	12	470	0	0	0	0	Varied	46	1,800
William Duff	Network Administration	34	1,237	0	0	0	0	0	0	Varied	34	1,237
Brian Klinge	Electrician	31	990	0	0	0	0	0	0	Varied	31	990
Chuck Fojtik	Field Operations Supervisor	32	1,187	0	0	0	0	0	0	Varied	32	1,187
0	0	0	0	0	0	0	0	0	0	Varied	0	0
Total Salaries		655	21,961	76	2,676	0	0	0	0		731	24,637
			0		0		0		0			0
Average Fringe Benefits			14,780		1,801		0		0			16,581
FICA (Temps)			0		0		0		0			0
Subtotal Labor			36,740		4,477		0		0			41,218

Equipment

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
Subtotal Equipment		0	0	0	0	0	0	0	0	0	0

Other Direct Costs

1800 1999 Air Compressor	27	208	0	0	0	0	0	0	0		208
2292 2009 Ford F-250	30	243	0	0	0	0	0	0	0		243
4240 2009 Dodge Caravan	30	428	0	0	0	0	0	0	0		428
4247 2009 Ford F-250	32	324	0	0	0	0	0	0	0		324
4248 2006 GMC C-1500	28	128	0	0	0	0	0	0	0		128
4271 2016 Ford F-250 4X2	0	0	12	120	0	0	0	0	0		120
4272 2006 GMC Sierra	30	311	0	0	0	0	0	0	0		311
4364 Cable Teel Trailer	24	77	0	0	0	0	0	0	0		77
4404 1999 Trailer	30	179	0	0	0	0	0	0	0		179
4405 2001 Reel Trailer	30	376	0	0	0	0	0	0	0		376
4412 2005 Trailer	30	207	0	0	0	0	0	0	0		207
4502 2001 Dump Truck	30	717	0	0	0	0	0	0	0		717
4505 2013 Dump Truck	30	408	0	0	0	0	0	0	0		408
4603 2000 Ford F-750	42	1,717	0	0	0	0	0	0	0		1,717
4612 Platform Truck	45	2,131	0	0	0	0	0	0	0		2,131
4616 Bucket Truck	39	897	0	0	0	0	0	0	0		897
4617 2011 Ford F-750	40	767	0	0	0	0	0	0	0		767
4782 Trencher	14	2,210	0	0	0	0	0	0	0		2,210
6613 2013 Ford F-750	45	1,424	0	0	0	0	0	0	0		1,424
		12,753		120	0	0	0	0	0		12,872

Travel

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
Subtotal Travel Costs		0	0	0	0	0	0	0	0	0	0

Total Direct Cost		49,493	4,597	0	0	0	0	0	0	54,090
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Indirect Costs	81.0%	29,760	3,627	0	0	0	0	0	0	33,386
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Estimated Total Cost		79,252	8,224	0	0	0	0	0	0	87,476
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PAID FROM MTC FUNDS

CITY OF ANN ARBOR FEDERAL BUDGET
to University of Michigan Transportation Research Institute
for inclusion in the USDOT - Federal Highway Administration RFA to
"Maintain, Operate, and Sustain the Ann Arbor Test Environment"

YEAR 3		Total WA1: Operate and Maintain Test Environment		Total WA2: Upgrade Infrastructure & Security in Test Environment Operations		WA3: Plan & Develop a Sustainable Operational Environment		WA4: Support Other Related Research Activities		TOTAL BUDGET 5/11/17 - 5/10/18		
Name*	Project Role	Hrs	Amt	Hrs	Amt	Hrs	Amt	Hrs	Amt	Hourly Rate	Hrs	Amt
Les Sipowski	Engineer	8	362	0	0	0	0	0	0	\$45.29	8	362
Jeremy Sype	Electrician	14	375	0	0	0	0	0	0	\$26.81	14	375
John Tomich	Electrician	14	402	0	0	0	0	0	0	\$28.75	14	402
Robert Medaugh	Electrician	14	434	0	0	0	0	0	0	\$31.00	14	434
Beth Nieman	Electrician	14	403	0	0	0	0	0	0	\$28.76	14	403
Dennis Fischer	Electrician	14	479	0	0	0	0	0	0	\$34.20	14	479
Terry Clark	Electrician	14	479	0	0	0	0	0	0	\$34.20	14	479
Tim Paquin	Electrician	14	479	0	0	0	0	0	0	\$34.20	14	479
Kevin Braun	Electrician	40	1,368	0	0	0	0	0	0	\$34.20	40	1,368
Stephen Longworth	Electrician	14	403	0	0	0	0	0	0	\$28.76	14	403
Russell Hanshue	Project Manager	11	546	0	0	0	0	0	0	\$49.67	11	546
Dave Harris	Network Administration	10	399	0	0	0	0	0	0	\$39.94	10	399
William Duff	Network Administration	10	371	0	0	0	0	0	0	\$37.15	10	371
Brian Klinge	Electrician	11	358	0	0	0	0	0	0	\$32.56	11	358
Chuck Fojtik	Field Operations Supervisor	12	453	0	0	0	0	0	0	\$37.78	12	453
0	0	0	0	0	0	0	0	0	0	\$0.00	0	0
Total Salaries		214	7,312	0	0	0	0	0	0		214	7,312
			0		0		0		0			0
Average Fringe Benefits			4,921		0		0		0			4,921
FICA (Temps)			0		0		0		0			0
Subtotal Labor			12,233		0		0		0			12,233

Equipment

Servers	0	0	0	0	0
Test Vehicles	0	0	0	0	0
Fabricate DAS (incurs IDC)	0	0	0	0	0
Subtotal Equipment	0	0	0	0	0

Other Direct Costs

1800 1999 Air Compressor	54	0	0	0	54
2292 2009 Ford F-250	81	0	0	0	81
4240 2009 Dodge Caravan	143	0	0	0	143
4247 2009 Ford F-250	111	0	0	0	111
4248 2006 GMC C-1500	46	0	0	0	46
4272 2006 GMC Sierra	104	0	0	0	104
4364 Cable Teel Trailer	3	0	0	0	3
4404 1999 Trailer	60	0	0	0	60
4405 2001 Reel Trailer	125	0	0	0	125
4412 2005 Trailer	69	0	0	0	69
4502 2001 Dump Truck	239	0	0	0	239
4505 2013 Dump Truck	136	0	0	0	136
4603 2000 Ford F-750	572	0	0	0	572
4612 Platform Truck	710	0	0	0	710
4616 Bucket Truck	299	0	0	0	299
4617 2011 Ford F-750	192	0	0	0	192
4782 Trencher	632	0	0	0	632
6613 2013 Ford F-750	475	0	0	0	475
	4,050	0	0	0	4,050

Travel

	0	0	0	0	0
	0	0	0	0	0
Subtotal Travel Costs	0	0	0	0	0

Total Direct Cost	16,284	0	0	0	16,284
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Indirect Costs	81.0%	9,909	0	0	9,909
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Estimated Total Cost	26,193	0	0	0	26,193
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CITY OF ANN ARBOR MTC BUDGET
to University of Michigan Transportation Research Institute
for inclusion in the USDOT - Federal Highway Administration RFA to
"Maintain, Operate, and Sustain the Ann Arbor Test Environment"

YEAR 2 (CV-CID)		Total WA1: Operate and Maintain Test Environment		Total WA2: Upgrade Infrastructure & Security in Test Environment Operations		WA3: Plan & Develop a Sustainable Operational Environment		WA4: Support Other Related Research Activities		TOTAL BUDGET 5/11/16 - 5/10/18		
		Hrs	Amt	Hrs	Amt	Hrs	Amt	Hrs	Amt	Hourly Rate	Hrs	Amt
Les Sipowski	Engineer	0	0	0	0	0	0	0	0	\$44.40	0	0
Jeremy Sype	Electrician	0	0	0	0	0	0	0	0	\$26.29	0	0
John Tomich	Electrician	0	0	0	0	0	0	0	0	\$28.18	0	0
Robert Medaugh	Electrician	0	0	0	0	0	0	0	0	\$30.40	0	0
Beth Nieman	Electrician	0	0	0	0	0	0	0	0	\$28.19	0	0
Dennis Fischer	Electrician	0	0	0	0	0	0	0	0	\$33.53	0	0
Terry Clark	Electrician	0	0	0	0	0	0	0	0	\$33.53	0	0
Tim Paquin	Electrician	0	0	0	0	0	0	0	0	\$33.53	0	0
Kevin Braun	Electrician	0	0	60	2,012	0	0	0	0	\$33.53	60	2,012
Stephen Longworth	Electrician	0	0	0	0	0	0	0	0	\$28.19	0	0
Russell Hanshue	Project Manager	0	0	4	195	0	0	0	0	\$48.70	4	195
Dave Harris	Network Administration	0	0	12	470	0	0	0	0	\$39.15	12	470
William Duff	Network Administration	0	0	0	0	0	0	0	0	\$36.42	0	0
Brian Klinge	Electrician	0	0	0	0	0	0	0	0	\$31.93	0	0
Chuck Fojtik	Field Operations Supervisor	0	0	0	0	0	0	0	0	\$37.04	0	0
0	0	0	0	0	0	0	0	0	0	\$0.00	0	0
Total Salaries		0	0	76	2,676	0	0	0	0		76	2,676
Average Fringe Benefits			0		0		0		0			0
FICA (Temps)			0		1,801		0		0			1,801
FICA (Temps)			0		0		0		0			0
Subtotal Labor			0		4,477		0		0			4,477

Equipment

	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Equipment	0	0	0	0	0	0	0	0	0	0	0	0

Other Direct Costs

1800 1999 Air Compressor	0	0	0	0	0	0	0	0	0	0	0	0
2292 2009 Ford F-250	0	0	0	0	0	0	0	0	0	0	0	0
4240 2009 Dodge Caravan	0	0	0	0	0	0	0	0	0	0	0	0
4247 2009 Ford F-250	0	0	0	0	0	0	0	0	0	0	0	0
4248 2006 GMC C-1500	0	0	0	0	0	0	0	0	0	0	0	0
4271 2016 Ford F-250 4X2	0	0	12	120	0	0	0	0	0	0	120	120
4272 2006 GMC Sierra	0	0	0	0	0	0	0	0	0	0	0	0
4364 Cable Teel Trailer	0	0	0	0	0	0	0	0	0	0	0	0
4404 1999 Trailer	0	0	0	0	0	0	0	0	0	0	0	0
4405 2001 Reel Trailer	0	0	0	0	0	0	0	0	0	0	0	0
4412 2005 Trailer	0	0	0	0	0	0	0	0	0	0	0	0
4502 2001 Dump Truck	0	0	0	0	0	0	0	0	0	0	0	0
4505 2013 Dump Truck	0	0	0	0	0	0	0	0	0	0	0	0
4603 2000 Ford F-750	0	0	0	0	0	0	0	0	0	0	0	0
4612 Platform Truck	0	0	0	0	0	0	0	0	0	0	0	0
4616 Bucket Truck	0	0	0	0	0	0	0	0	0	0	0	0
4617 2011 Ford F-750	0	0	0	0	0	0	0	0	0	0	0	0
4782 Trencher	0	0	0	0	0	0	0	0	0	0	0	0
6613 2013 Ford F-750	0	0	0	0	0	0	0	0	0	0	0	0
		0		120		0		0		0		120

Travel

	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Travel Costs	0	0	0	0	0	0	0	0	0	0	0	0

Total Direct Cost		0		4,597		0		0		0		4,597
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Indirect Costs	81.0%	0		3,627		0		0		0		3,627
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Estimated Total Cost		0		8,224		0		0		0		8,224
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UMTRI Intersection Data Hub: Connected Vehicle-Based Controller Interface Device (CV-CID)

Scope of Work for the City of Ann Arbor Implementation

April 2016

1. Introduction

The UMTRI Intersection Data Hub, i.e., connected vehicle-based traffic signal controller interface device (CV-CID), is developed to interface with both roadside unit (RSU) and traffic signal controller to simultaneously collect Dedicated Short Range Communications (DSRC) messages from connected vehicles and detector and signal status data from traffic signal controller. CV-CID pre-processes the data and transmit the data to the central server in real time for storage, management and visualization. CV-CID can also encode signal phasing and timing data (SPaT) and road geometry information (MAP) into standard DSRC messages. These messages are sent to RSU for broadcasting in real time. CV-CID is developed as a universal interface device, which is compatible with various types of RSUs, traffic signal cabinets and controllers. This device is independent with controller and RSU vendors, and can serve as a cost-effective way to upgrade existing traffic signal infrastructure to enable connected vehicle applications. We should note that CV-CID is designed as a listening device to traffic signal controller, so it will not output any commands to signal controller and will not interfere with signal controller operation.

2. System Architecture

The proposed system architecture is shown in Figure 1. For each intersection, one CV-CID device will be installed in the signal cabinet to communicate with both the RSU and the signal controller.

The RSU receives Basic Safety Messages (BSM) from all connected vehicles within the DSRC communication range and forwards to CV-CID. CV-CID receives the signal phase and timing data from the signal controller and generates and forwards SAE J2735 Signal Phasing and Timing (SPaT) messages to the RSU. CV-CID also receives the loop detector data and signal status data from harness cable or the Synchronous Data Link Control (SDLC) port. CV-CID preprocesses the data and sends the data to the central server in real time. CV-CID can also generates vehicle situation data message (VSM) and intersection situation data (ISD) according to USDOT connected vehicle reference implementation architecture (CVRIA) and forward them to USDOT data warehouse.

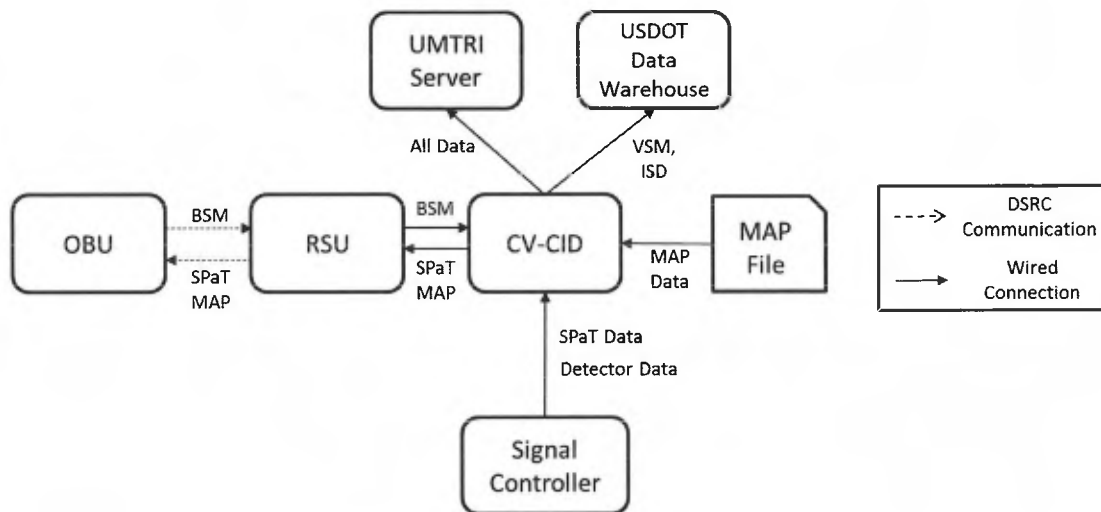


Figure 1: System Architecture and Data Flow

CV-CID interfaces with traffic signal controller to collect vehicle detector data and signal status data through either harness cables or SDLC port. The illustration is shown in Figure 2. Corresponding to two typical types of traffic cabinets (TS1 and TS2 cabinet), two types of interfaces are provided: 1) through harness cable for TS1 cabinet, and 2) through SDLC port for TS2 traffic cabinet. All interfaces with signal cabinets are unidirectional with input only and do not output any signals to the signal cabinet. The connection with cabinet are straightforward: For TS1 cabinet, users can connect controller port A, B, C, D, and cabinet harness cables with designated ports of the Y-shape cables from CV-CID. For TS2 cabinet, users can simply connect SDLC port of CV-CID with a SDLC port in the cabinet.

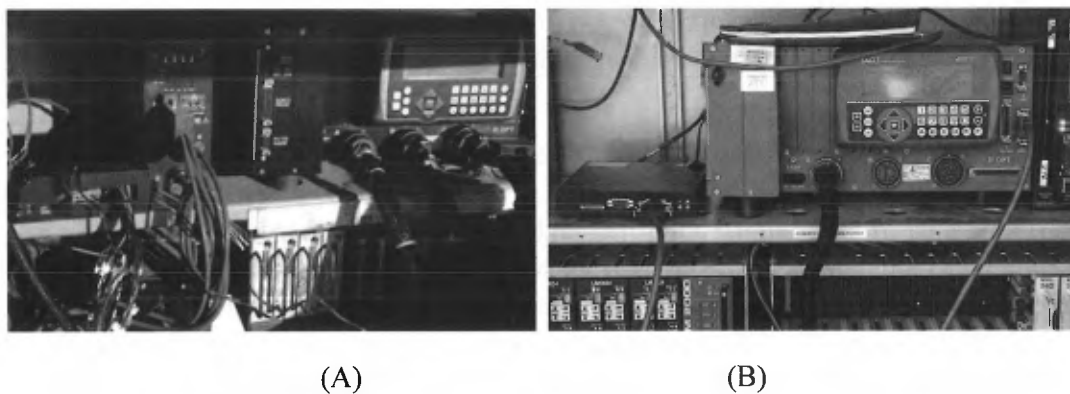


Figure 2: Illustration of interfacing with cabinet, A) TS1 Cabinet and B) TS2 Cabinet

The central server located at UMTRI has three components: a database, performance measurement software and data visualization applications. The database is used to store all the data collected by CV-CID. A web interface to display traffic signal performance will be provided to the City of Ann Arbor. For illustration purpose, Figure 3 shows the web interface for traffic signal performance monitoring from our previous

implementation in Minnesota. The performance measures displayed through the web interface includes intersection queue length, vehicle delay, level of service, arterial travel time, and much more.



Figure 3: Web interface with real-time information

For network communication, please refer to Figure 4, which was provided by Parsons Brinkerhoff. Depending on the field implementation, CV-CID can either replace or add to the Blackbox Transceiver in the upper left corner of the network communication diagram.

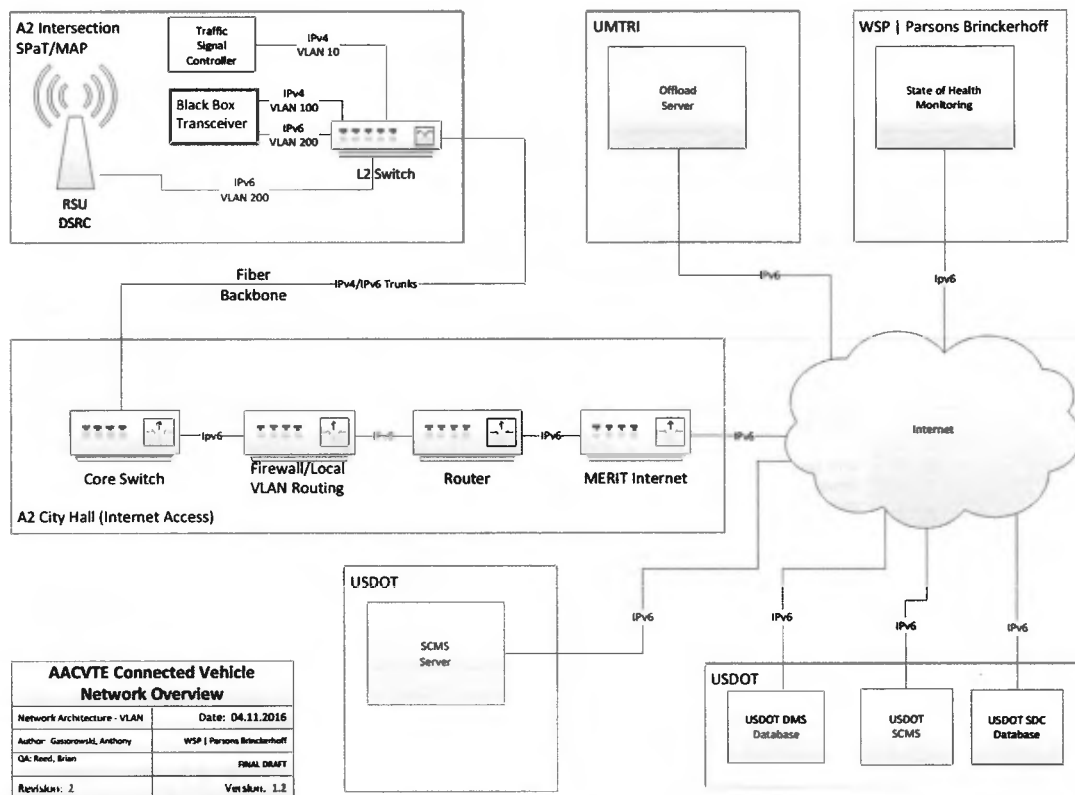


Figure 4. Diagram for Network Communication (provided by Parsons Brinckerhoff)

3. Scope of Work for City of Ann Arbor

CV-CID will be deployed at 6 intersections along the Plymouth Rd. The six intersections are Plymouth & Green Rd, Huron Pkwy, Nixon Rd, Traverwood Dr, Murfin Ave, and Barton Dr. These intersections have been equipped with RSUs in the Safety Pilot Model Deployment project. The central server will be located at UMTRI.

The work for the City of Ann Arbor consists of the following tasks:

1. Install the CV-CIDs in the field, with the assistance from UMTRI.
2. Provide network communication for CV-CIDs.
3. Assist the maintenance of the CV-CIDs in the field.

The installation of CV-CIDs into the traffic signal controller cabinets is straightforward and it will take about 15 minutes for each intersection. During the installation, the intersection signal will be put on flash red lights for all phases. The City of Ann Arbor's primary responsibility is to work with the UMTRI team to make necessary connections (including harness, SDLC, power, and Ethernet) for CV-CID and ensure safe operation of traffic signal controller cabinet during installation.

Since CV-CID requires real time communication with the central server located at UMTRI, the City of Ann Arbor will need to provide network communications to each CV-CID deployed in the field. The City will provide each CV-CID with an IP address. Supported by the City, the UMTRI team will work with Parsons Brinkerhoff to perform any necessary network configuration to connect deployed CV-CIDs with the central server.

The City of Ann Arbor will assist the UMTRI team maintaining, operating, and sustaining the deployed devices, in a manner similar to other AACVTE deployments. The UMTRI team will ensure that all equipment has updated software and firmware installed. The City will assist the UMTRI team performing any necessary troubleshooting and remediation of issues identified. In case of equipment replacement, replaced equipment will be provided by the UMTRI team.



Leadership Circle Member Agreement ("Membership Agreement")

THE REGENTS OF THE UNIVERSITY OF MICHIGAN (hereinafter called the UNIVERSITY) have established a Mobility Transformation Center to support a multi-disciplinary effort to advance connected vehicle technology research and implementation (hereinafter called the MTC).

Robert Bosch LLC (hereafter called LEADERSHIP CIRCLE MEMBER or LC MEMBER) agrees to participate in the MTC as follows and as detailed in the attached Terms and Conditions:

- 1. LC MEMBER agrees to provide annual support to the MTC in the amount of \$333,333/year for a minimum of three (3) years, such payment to be made on an annual basis in no more than 4 equal quarterly payments. The first such payment is due within thirty (30) days after the signing of this Agreement by both parties.
- 2. This Agreement is effective as of September 30, 2014, shall remain effective through September 30, 2017, and will automatically renew each year, unless non-renewed by LC MEMBER. LC MEMBER may non-renew its membership by providing a six (6) month written notice to the Director of the MTC, in writing, of its intention to do so. Renewal beyond the effective period herein is at LC MEMBER's sole discretion.

- 3. LC MEMBER appoints: Kay Stepper / Frank Sgambati _____
(name)
 (734) 979-4858 / (734) 979-3826 ____
(phone)
 kay.stepper@us.bosch.com /
 frank.sgambati@us.bosch.com
(email)

as its designated representative to the MTC. LC MEMBER may change designated representative at their discretion.

- 4. University appoints: Peter F. Sweatman
 734-764-7605
 sweatman@umich.edu

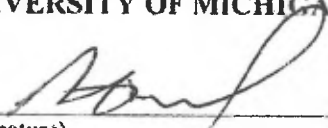
as MTC Director and its designated representative to the MTC. University may change the MTC Director and designated representative at its discretion.

- 5. LC MEMBER agrees to bear all costs it incurs in participation in the MTC such as travel to and from meetings and other visits to the MTC.
- 6. LC MEMBER understands that funds provided to the UNIVERSITY for the MTC will be added to funds from other members and therefore no individual financial reports will be given to the LC MEMBER concerning the disposition of the particular funds provided by it.

7. Neither LC MEMBER nor the UNIVERSITY will use the names or trademarks of the other in any promotion or advertising without the express written permission of the party to be named. The UNIVERSITY's authorized representative for such purposes is the Associate Vice-President for Research, of the Office of Research and Sponsored Projects.

APPROVED AND ACCEPTED BY:

**THE REGENTS OF THE
UNIVERSITY OF MICHIGAN**



(Signature)

Peter J. Gerard
Associate Director

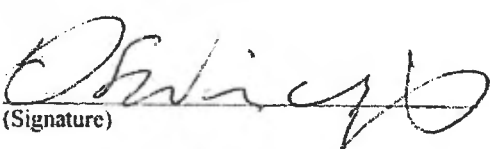
(Name) Grants and Contracts

(Title)

4-3-15

(Date)

Robert Bosch LLC



(Signature)

Scott Winchip

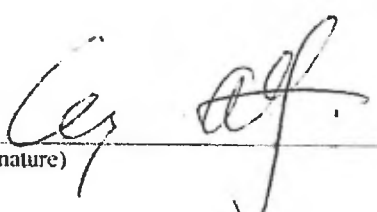
(Name)

Regional President-NA, Chassis Systems Control

(Title)

31 March 2015

(Date)



(Signature)

Kay Stepper

(Name)

Head of Driver Assistance and Automated Driver,
NA

(Title)

March 31, 2015

(Date)



2901 Baxter Road, Ann Arbor MI 48109-2150 • (734)-647-4217 • www.mtc.umich.edu

MOBILITY TRANSFORMATION CENTER
MEMBERSHIP TERMS AND CONDITIONS

WHEREAS, The Regents of the University of Michigan (“University”) have established the Mobility Transformation Center (“MTC”) to be operated in accordance with these Terms and Conditions and the applicable policies of the University of Michigan. Its goal is to work with public and private collaborators to improve the safety, environmental performance, energy consumption, and overall societal benefit of the domestic and global ground transportation systems by laying the foundation for a commercially viable ecosystem of connected and automated vehicles.

AND WHEREAS, the MTC aims to have three large “living laboratories” (which will be collectively referred to as the “Pillars”) available to its Members for collaborative research and development: (1) Connected Ann Arbor (“CAA”); (2) Connected Southeast Michigan (“CSEM”); and (3) Automated Ann Arbor (“AAA”), as well as the Mobility Transformation Facility (“MTF”), a controlled test environment available to MTC research and development programs.

ARTICLE 1
ROLES AND RESPONSIBILITIES

A. MTC Director

The MTC will be led by a Principal Investigator, who will serve as the MTC Director (hereafter the “Director”), and who will report administratively to the University’s Vice President for Research. The Director will have final authority over the research, education, and outreach programs and allocation of MTC resources. The Director will have overall responsibility for:

1. Overall management, operation, outreach and administration of the MTC;
2. Providing overall direction and vision for the MTC;
3. Engaging industrial, governmental and other collaborators in the conduct of MTC;
4. Coordinating with the Leadership Circle as defined in Section B, to advance the goals of MTC and providing an annual executive summary, which shall include a financial summary, to the Leadership Circle Members;
5. Providing sound fiscal management;

6. Maintaining high quality, productive research, training and education programs;
7. Coordinating with academic units within the University, as well as with collaborating researchers from MTC Members; and
8. Working with the University's Office of Technology Transfer ("OTT") in maintaining a comprehensive strategy and program for managing and transferring Intellectual Property (Article 4) and Data and Participant Information (Article 5).

B. Leadership Circle

The Leadership Circle will have the responsibility to discuss and formulate high-level research questions to be addressed by the MTC in the form of Pooled Research Projects (as defined in Article 3.A.1.). The MTC will develop requests for proposals, and each Leadership Circle Member will review and rank received proposals. The Director will consider such reviews and rankings when selecting Pooled Research Projects pursuant to Article 3. The Leadership Circle will have access to Faculty Council reviews and rankings of received proposals. The Leadership Circle will review all MTC Pooled Research Projects in the context of the MTC mission and goals

In addition to the responsibilities described in the preceding paragraph, the Leadership Circle will meet semi-annually to review the overall mission and performance of the MTC. These meetings will include laboratory visits and demonstrations in the MTF and the deployments when possible. In addition, the Leadership Circle will advise the Director on industry requirements specific to data collection and the development of the three Pillars, as well as areas for further investigation. The Leadership Circle will also assist in seeking further collaborative funding for strategic research objectives.

ARTICLE 2 MTC MEMBERSHIP

A. Membership Categories and Benefits. A list of all organizations that may join the Leadership Circle as founding members is attached as Exhibit A. Beginning September 30, 2014, and for a period of one year thereafter, no organization other than those listed on Exhibit A may join the Leadership Circle, unless approved by a unanimous vote of all Leadership Circle Members. Following this one-year period and upon recommendation by the Director, new organizations may join the Leadership Circle upon approval by a majority of all Leadership Circle Members. Upon approval of the MTC Director, an organization that is interested in a commercially viable ecosystem of connected and automated vehicles may become an Affiliate Member of the MTC. Leadership Circle and Affiliate Members may hereafter, when appropriate, be referred to collectively as "Members." Advisors and guests, including government advisors, may be invited to participate in MTC Member activities, with the advice of the Leadership Circle.

1. Leadership Circle Members. Leadership Circle Members will be entitled to the following benefits:

- (a) Advise the MTC Director and inform MTC strategy;
- (b) Help formulate key research questions;

- (c) Advise the MTC Director on the selection of Pooled Research Projects and the scope of Project Authorizations for MTC Projects in which the Leadership Circle Member participates;
- (d) Advise the MTC Director on the use of research and deployment assets including assets made available to Affiliate Members;
- (e) Opportunity to immerse industry engineers in state-of-the-art research and innovation team environments as engineers-in-residence at the MTC;
- (f) Facilitated access to key faculty & students;
- (g) Engage in the MTC to help shape the research Pillars;
- (h) Preferential access to the MTF;
- (i) Participation in all MTC convened research activities, MTC Research Review Meetings, and the Annual MTC Congress;
- (j) Early access to MTC research results;
- (k) Coordinated engagement with key federal, state & local agencies to inform key standards and regulations;
- (l) License and option rights to Intellectual Property as described in Article 4.; and
- (m) Access to Data from MTC Projects as described in Article 5.

2. Affiliate Members. Affiliate Members will enjoy the following benefits:

- (a) Opportunity to use selected research and deployment assets;
- (b) Opportunities for access to the MTF;
- (c) Attendance at MTC Research Review Meetings and the Annual MTC Congress, including:
 - i. receiving an early integrated view of the emerging mobility marketplace;
 - ii. access to an independent forum of suppliers, manufacturers, and end-users; and
 - iii. access to University expertise in social, legal, regulatory and policy.
- (d) Access to select Data from MTC Projects, as determined by the Director.

B. Membership Dues

1. Leadership Circle Members. Leadership Circle Members (also known as “LC Members”) will contribute cash, or cash and in-kind contributions subject to the approval of the Director in the amount of \$333,333.00 annually per membership (“Membership Dues”), payable to: The Regents of the University of Michigan. In lieu of no more than one third of the applicable Membership Dues, and with the agreement of the Director, a Leadership Circle Member may make a contribution to the MTC of software, services, equipment or other in-kind contribution that the Director has determined is necessary for the performance of an approved MTC Project and that the MTC would have otherwise been required to purchase. Any exceptions must be approved by the Director. In order to realize the full leveraging potential for MTC members and collaborators, in-kind contributions must be allowable as cost-sharing match for federal

and state funded portions of the MTF and must be auditable as such against applicable federal regulations described in Office of Management and Budget Circular A-21. Membership Dues will be used for the reasonable support of MTC Projects and operations, the Pillars, and the establishment and maintenance of the MTF.

2. Affiliate Members. Affiliate Members will contribute cash, or cash and in-kind contributions subject to the approval of the Director in the amount of \$50,000.00 annually per membership, payable to: The Regents of the University of Michigan. Upon meeting the appropriate cash, or cash and in-kind contribution requirements and subject to the provisions of Article 2.A., Affiliate Members may upgrade membership status to Leadership Circle membership.

C. Membership Agreement.

Each applicant for membership in the MTC agrees to these Terms and Conditions by signing a Membership Agreement that references these Terms and Conditions. Membership is effective as of the Effective Date set out in the Membership Agreement signed by authorized representatives of both the University and the Affiliate Member or Leadership Circle Member as applicable. The MTC will pool all cash received from Members and will allocate it to MTC Projects as provided in Article 3, below. A Member at any level may terminate its membership by providing a six (6) month notice in writing of its intention to do so.

ARTICLE 3

PROJECT SELECTION, MEETINGS, AND INFORMATION DISSEMINATION

A. Selection of MTC Projects. An MTC Project subject to these Terms and Conditions will be either a Pooled Research Project or a Tailored Research Project described below. For each MTC Project, the Director will describe the research to be conducted, the participants who will perform the research, and the budget ("Project Authorization"). MTC Projects will be presented in the semi-annual MTC Research Review Meetings.

1. Pooled Research Projects. A "Pooled Research Project" is any research and development work funded by the pooled MTC research fund. Ideas for such research projects may come from the faculty or MTC members. The Director will present candidate projects for discussion by the Leadership Circle to be funded in whole or in part by the MTC. The Director will select Pooled Research Projects following consultation with the Leadership Circle and Faculty Council, with the primary goal of choosing research and educational activities that fit the MTC's capabilities and most favorably impact MTC objectives. The Leadership Circle will advise the Director on the choice of Pooled Research Projects. A formal and transparent process for soliciting input and ranking proposals and a mechanism for documenting and reporting will be developed so that input from the Leadership Circle Members and members of all other advisory groups will be documented and available

for discussion in Leadership Circle meetings or e-mail communications with the Leadership Circle Members.

2. **Tailored Research Projects.** A Leadership Circle Member is permitted to allocate up to 25% of its Membership Dues paid pursuant to Article 2, less the value of any in-kind contributions, to support a “Tailored Research Project” that is in alignment with the goals of the MTC. Tailored Research Projects can be formed directly by a single or several Leadership Circle Members and University faculty and require approval by the Director.

B. MTC Research Review Meetings. The semi-annual MTC Research Review Meetings are open to all MTC Leadership Circle Members and Affiliate Members, and selected government and academic participants as determined by the Director. All Pooled Research Projects and Tailored Research Projects will be presented for review at these meetings. MTC Project presentations at the MTC Research Review Meetings are subject to the confidentiality obligations and review requirements of Article 6.

C. Annual MTC Congress. The Annual MTC Congress is open to both MTC and non-MTC participants for outreach, recruiting and education purposes. MTC Congress will highlight MTC research, development and educational achievements. MTC Project presentations at the MTC Congress are subject to the confidentiality obligations and review requirements of Article 6.

ARTICLE 4 INTELLECTUAL PROPERTY

A. Background Intellectual Property

1. University Background Intellectual Property. University may provide expertise, technology, know-how, information and related intellectual property rights, including but not limited to inventions, improvements and discoveries including computer software, works, material and data, whether or not protectable by patent, trade secret, trademark or copyright, owned by University before execution of these Terms and Conditions or created by University or by its contractors after the execution of these Terms and Conditions but independently of any MTC Project (“University Background Intellectual Property”) on a non-exclusive, royalty-free basis for research and development in any Pooled Research Project(s), or for research and development in any Tailored Research Project(s). University shall not knowingly include in University Background Intellectual Property any material subject to third party rights which are inconsistent with University’s obligations under these Terms and Conditions.

In the event that University Background Intellectual Property is needed to practice rights under University Foreground Intellectual Property, LC Member Foreground Intellectual Property and Joint Foreground Intellectual Property as defined below, those LC

Members wishing to use such University Background Intellectual Property shall be required to obtain the appropriate license, which shall be non-exclusive, may be royalty bearing, and shall be on commercially reasonable terms, from University. University shall not incorporate any University Background Intellectual Property or third party dependencies in the project deliverables without advance written notice to LC Members for any Pooled Research Project, and without LC Member's written agreement specifying the terms and conditions (including any associated fees) governing such incorporation in any Tailored Research Project. University shall identify such University Background Intellectual Property and third party dependencies in the Project Authorization document prior to commencing the MTC Project. Absent any such written agreement, LC Member's rights in such project deliverables in Tailored Research Projects that depend on University Background Intellectual Property shall be at least commensurate with LC Member's rights in University Foreground Intellectual Property.

2. LC Member Background Intellectual Property. LC Members, may but are not obligated to provide expertise, technology, know-how, information and related intellectual property rights, including but not limited to inventions, improvements and discoveries including computer software, works, material and data, whether or not protectable by patent, trade secret, trademark or copyright, owned by LC Members before execution of these Terms and Conditions or created by LC Members or by their contractors after the execution of these Terms and Conditions but independently of any MTC Project ("LC Member Background Intellectual Property") for use in any Pooled Research Project or Tailored Research Project. If expressly defined LC Member Background Intellectual Property is agreed at the sole discretion by a LC Member owning such LC Member Background Intellectual Property to be provided to third parties (e.g., University, other LC Members, Affiliate Members or other third parties), it may be provided on a non-exclusive, royalty-free or royalty-bearing basis for research and development purposes in support of the performance of Pooled Research Projects or Tailored Research Projects. The provision of any LC Member Background Intellectual Property shall be authorized in the Project Authorization document, which shall be signed by an authorized representative of the LC Member providing such LC Member Background Intellectual Property, and wherein the MTC authorizes the specific project in which such LC Member Intellectual Property will be used. An LC Member shall not knowingly include in LC Member Background Intellectual Property any material subject to third party rights which are inconsistent with such LC Member's obligations under these Terms and Conditions.

In the event that LC Member Background Intellectual Property is needed to commercialize University Foreground Intellectual Property, LC Member Foreground Intellectual Property or Joint Foreground Intellectual Property generated in a Pooled Research Project or a Tailored Research Project, those LC Members wishing to use such LC Member Background Intellectual Property shall seek the appropriate fully executed written license, which may be royalty bearing, and shall be negotiated in good faith and on commercially reasonable terms, from the LC Member providing such LC Member Background Intellectual Property. It is at the sole discretion of a LC Member whether to

grant a license to its respective LC Member Background Intellectual Property.

B. Foreground Intellectual Property

1. University Foreground Intellectual Property. For Pooled Research Projects or Tailored Research Projects, all rights and title to inventions, improvements or discoveries, whether or not patentable or copyrightable, which are conceived or made solely by one or more employees, contractors, consultants or agents of the University in performance of a Pooled Research Project or a Tailored Research Project shall belong to University and shall be subject to these Terms and Conditions (University Foreground Intellectual Property).

2. LC Member Foreground Intellectual Property. For Pooled Research Projects or Tailored Research Projects, all rights and title to inventions, improvements and discoveries, whether or not patentable or copyrightable, which are conceived or made solely by one or more employees, contractors, consultants or agents of an LC Member in performance of a Pooled Research Project or Tailored Research Project (“LC Member Foreground Intellectual Property”) shall belong solely to the conceiving or making LC Member subject to the following: (a) LC Member Foreground Intellectual Property conceived or made in the performance of a Pooled Research Project shall be governed by these Terms and Conditions and the applicable Project Authorization; and (b) LC Member Foreground Intellectual Property conceived or made in performance of a Tailored Research Project shall be governed by these Terms and Conditions, the applicable Project Authorization, and any separate terms and conditions reduced to a separate agreement between LC Members who are involved in the performance of the Tailored Research Project (“Separate Agreement”). If the Separate Agreement conflicts with these Terms and Conditions, the Separate Agreement shall control as between the LC Members entering into it. For the purposes of clarity, University is not a LC Member. Separate agreements between University and LC Members are not anticipated.

3. Joint Foreground Intellectual Property. For Pooled Research Projects or Tailored Research Projects, all rights and title to inventions, improvements or discoveries, whether or not patentable, which are made jointly as defined or interpreted in accordance with U.S. patent, copyright and common law by one or more employees of a LC Member and one or more employees of University or any other LC Member in performance of a Pooled Research Project or a Tailored Research Project shall be jointly owned by such LC Member(s) and University (“Joint Foreground Intellectual Property”) subject to the following: (a) Joint Foreground Intellectual Property made in the performance of a Pooled Research Project shall be governed by these Terms and Conditions and the applicable Project Authorization; and (b) Joint Foreground Intellectual Property made in the performance of a Tailored Research Project shall be governed by these Terms and Conditions, the applicable Project Authorization, and any Separate Agreement between LC Members who are involved in the performance of the Tailored Research Project. If the Separate Agreement conflicts with these Terms and Conditions, the Separate Agreement shall control as between the LC Members entering into it. For the purposes of clarity, University is not a LC Member. Separate

agreements between University and LC Members are not anticipated.

With respect to Joint Foreground Intellectual Property (irrespective of the country of creation or development, or where rights or enforcement is sought) and for the duration of the intellectual property right concerned, the joint owners agree that: each joint owner shall be entitled to non-exclusively enjoy benefits of or practice under Joint Foreground Intellectual Property any intellectual property rights for any commercial/non-commercial purpose, including exploit, enforce, collect royalties and/or license(s) or sub-license(s) (for/in a limited or unlimited term/territory) any intellectual property rights independently without any obligation to compensate, account to, obtain permission from, or share royalties with the other joint owner. For the avoidance of doubt, no joint owner may require the other joint owner to enforce Joint Foreground Intellectual Property. It is understood and agreed that a joint owner may freely assign any intellectual property right in Joint Foreground Intellectual Property to a third party subject to these Terms and Conditions and that if the laws of any jurisdiction require a consent letter to be issued by one joint owner for licensing or assigning by the other joint owner its share of the Joint Foreground Intellectual Property to third parties, such a consent consistent with these Terms and Conditions shall be promptly issued.

C. Disclosure and Protection of Foreground Intellectual Property.

1. Pooled Research Projects.

a. Disclosure and Decision to Seek Legal Protection. For Pooled Research Projects: (i) University, its academic partners, and LC Members shall disclose all Foreground Intellectual Property to University's Office of Technology Transfer ("OTT"). OTT will in turn disclose such Foreground Intellectual Property to the Director; (ii) the Director will promptly and contemporaneously notify all LC Members of any applicable Foreground Intellectual Property; (iii) If the LC Members have the right to and desire that a patent application or application for other intellectual property protection be filed, the LC Members shall document such desire and the jurisdictions to file in and then shall request University to file and University shall promptly prepare, file, and prosecute such U. S. and foreign application(s) in University's or applicable LC Members' name; and (iv) University and the LC Members that expressed a desire to file such application(s) shall bear, on an equal or otherwise negotiated basis, all costs incurred in connection with such preparation, filing, prosecution, and maintenance of U. S. and foreign application(s).

b. Cooperation in Seeking Legal Protection. For Pooled Research Projects, applicable LC Members shall cooperate with University to assure that such application(s) will cover, to the best of LC Member's(s') knowledge, all items of commercial interest and importance. While University shall be responsible for making decisions regarding the scope and content of such application(s) to be filed and the prosecution thereof, applicable LC Members shall be given the opportunity to review and provide input thereto at least thirty (30) days prior to any filing date therefor. University shall inform applicable LC Members of all developments with

respect to such application(s) and shall promptly supply to applicable LC Members copies of all papers received and/or filed in therewith.

c. Discontinued Financial Support of Legal Protection.

(i) For Pooled Research Projects, if one LC Member decides to discontinue the financial support of the prosecution or maintenance of such application(s) and any patents or other intellectual property protection issuing therefrom, University shall be free to file or continue the prosecution or maintenance of the same, with University and the remaining LC Members bearing the associated costs on an equal or otherwise negotiated basis.

(ii) For Pooled Research Projects, if all LC Members decide to discontinue the financial support of the prosecution or maintenance of such application(s) and any patents or other intellectual property protection issuing therefrom, University shall be free to file or continue the prosecution or maintenance of the same at University's sole expense, but shall not be obligated to do so.

(iii) For Pooled Research Projects, Any LC Member who discontinues the financial support of the prosecution or maintenance of any patent application(s) and any patents or other intellectual property protection issuing therefrom, retains a limited, non-exclusive, royalty free license to use such respective patent applications or patents for internal research purposes only.

2. Tailored Research Projects.

a. Disclosure and Decision to Seek Legal Protection. For Tailored Research Projects: (i) University, its academic partners, and applicable LC Members participating in the Tailored Research Project (as documented by the applicable Project Authorization) shall disclose all Foreground Intellectual Property to University's Office of Technology Transfer ("OTT"). OTT will in turn disclose such Foreground Intellectual Property to the Director; (ii) the Director will promptly and contemporaneously notify all LC Members participating in such Tailored Research Project of any applicable Foreground Intellectual Property; (iii) If the LC Members participating in such Tailored Project have the right to and desire that a patent application or application for other intellectual property protection be filed, the LC Members participating in such Tailored Project shall document such desire and the jurisdictions to file in and then shall request University to file and University shall promptly prepare, file, and prosecute such U. S. and foreign application(s) in University's name or the name of the applicable LC Member(s) participating in such Tailored Research Project; and (iv) University and the LC Member(s) participating in such Tailored Research Project that expressed a desire to file such application(s) shall bear, on an equal or otherwise negotiated basis, all costs incurred in connection with such preparation, filing, prosecution, and maintenance of U. S. and foreign application(s).

b. Cooperation in Seeking Legal Protection. For Tailored Research Projects, applicable LC Members participating in such Tailored Research Project (as documented by the applicable Project Authorization), shall cooperate with University to assure that such application(s) will cover, to the best of LC Member's(s') knowledge, all items of commercial interest and importance. While University shall be responsible for making decisions regarding the scope and content of such application(s) to be filed and the prosecution thereof, applicable LC Member(s) participating in such Tailored Research Project shall be given the opportunity to review and provide input thereto at least thirty (30) days prior to any filing date therefor. University shall inform applicable LC Members participating in such Tailored Research Project of all developments with respect to such application(s) and shall promptly supply to applicable LC Members participating in such Tailored Research Project copies of all papers received and/or filed in therewith.

c. Discontinued Financial Support of Legal Protection.

(i) For Tailored Research Projects, if one LC Member participating in the Tailored Research Project decides to discontinue the financial support of the prosecution or maintenance of such application(s) and any patents or other intellectual property protection issuing therefrom, University shall be free to file or continue the prosecution or maintenance of the same, with University and the remaining LC Members participating in the Tailored Research Project bearing the associated costs on an equal or otherwise negotiated basis.

(ii) For Tailored Research Projects, if all LC Members participating in the Tailored Research Project decide to discontinue the financial support of the prosecution or maintenance of such application(s) and any patents or other intellectual property protection issuing therefrom, University shall be free to file or continue the prosecution or maintenance of the same at University's sole expense, but shall not be obligated to do so.

(iii) For Tailored Research Projects, any LC Member participating in the Tailored Research Project who discontinues the financial support of the prosecution or maintenance of any patent application(s) and any patents or other intellectual property protection issuing therefrom, retains a limited, non-exclusive, royalty free license to use such respective patent applications or patents for internal research purposes only.

D. Licensing

1. Pooled Research Projects and Foreground Intellectual Property. For Pooled Research Projects University and LC Members shall grant to University and all other LC Members a non-exclusive, irrevocable, world-wide, sublicensable, royalty-free license to use for any purpose (commercial and non-commercial) including the right to create and

solely own derivative works thereof, University Foreground Intellectual Property, LC Member Foreground Intellectual Property, and Joint Foreground Intellectual Property (“Foreground Intellectual Property,” collectively) which are conceived or reduced to practice in the performance of Pooled Research Projects.

2. Tailored Research Projects and Foreground Intellectual Property. For Tailored Research Projects and subject to Sections 4.A.1. and 4.A.2., University and LC Members participating in the Tailored Research Project shall grant to University and LC Members participating in both the Tailored Research Project and the financial support of a patent application and prosecution pursuant to Section 4.C.2.a. either (i) a non-exclusive, royalty-free license for non-commercial purposes only or (ii) an exclusive (in the event there is only one qualifying LC Member), or non-exclusive (in the event there is more than one qualifying LC Member) royalty bearing license, with the right to sub-license, for any purpose, to use Foreground Intellectual Property that is conceived or reduced to practice in the performance therein. The terms and conditions of any royalty-bearing license shall be negotiated in good faith and on commercially reasonable terms. In the event such terms and conditions are not concluded, after good faith efforts, upon the one (1) year anniversary of the notice provided by the MTC Director pursuant to Section 4.C.1.A.(ii), the owner of such University Foreground Intellectual Property, LC Member Foreground Intellectual Property, or Joint Foreground Intellectual Property shall be permitted to license same to 3rd parties except as otherwise limited herein. Notwithstanding the foregoing, University and LC Members participating in both the Tailored Research Project and the financial support of patent application and prosecution shall grant to all other LC Members participating in the Tailored Research Project but not participating in the financial support of a patent application and prosecution a limited, non-exclusive, royalty free, license to use Foreground Intellectual Property that is conceived or reduced to practice in the performance of such Tailored Research Project for internal research and development purposes only.

E. Rights of LC Members Joining After MTC Inception. Companies or other organizations not listed on Exhibit A, and joining the MTC as an LC Member shall be entitled to rights under this Article 4 six (6) months after the effective date of their Membership Agreement under Section 2.C., above.

F. Rights of U.S. Government. All licenses granted pursuant to these Terms and Conditions and any applicable Separate Agreement between LC Members may be subject to rights reserved by the U.S. government, if any. University shall disclose to LC Members in the Project Authorization if the University intends to use U.S. federal funds to support the MTC Project identified in the Project Authorization.

ARTICLE 5
DATA AND PARTICIPANT INFORMATION

- A. Leadership Circle Members shall, upon request, be permitted to review all data and research results generated by the MTC in connection with these Terms and Conditions (“Data”) and to copy any such Data at Leadership Circle Members’ expense, to the extent permitted by University’s Institutional Review Board (“IRB”) approval governing the Project (if required), the Informed Consent Form signed by persons participating in the Project as study subjects, if required, (“Participants”), and subject to the rights and obligations defined in Article 4 and to the obligations of confidentiality under Article 6 of these Terms and Conditions. Leadership Circle Members shall also be free to use such Data, subject to the limitations above, to assemble documentation required by regulatory authorities, and for other marketing and product development purposes, and the right to create and solely own derivative works thereof. Leadership Circle Members will credit the Data to the MTC and the investigators involved in generating such Data unless the MTC has otherwise requested in writing.
- B. Leadership Circle Members recognize the confidential nature of Participant records and agree to maintain the confidentiality of Participant data and records both in discussions and written materials, except as required by applicable regulatory authorities or other applicable regulations or decisions of the applicable IRB.
- C. Members agree as follows:
1. Not to use or further disclose the Data or any information contained therein other than as permitted by these Terms and Conditions or required by applicable law;
 2. To use appropriate technical, administrative, and procedural safeguards to prevent use or disclosure of the Data or any information contained therein other than as provided for by these Terms and Conditions;
 3. To report to University within five (5) days any use or disclosure of the Data or information contained therein, in whole or in part, not authorized by these Terms and Conditions, of which Member becomes aware; and
 4. Not to use the information contained in the Data to contact the individuals whose information is contained in the Data under any circumstance.
- D. In the event University becomes aware of any Member’s use of the Data or information contained therein, in whole or in part, not authorized under these Terms and Conditions, or permitted by applicable law, University may (i) terminate such Member’s Membership Agreement upon written notice; and/or (ii) disqualify (in whole or in part) the Member from receiving Data in the future.

ARTICLE 6
CONFIDENTIALITY AND PUBLICATIONS

A. Confidentiality. For the purpose of these Terms and Conditions, Confidential Information shall mean information provided by or belonging to a disclosing party which is provided to University or a LC Member that is marked "confidential," "proprietary" or the like by the disclosing party at the time of disclosure. If disclosing party discloses such information orally or in otherwise intangible format, such information shall be identified as confidential, proprietary or the like at the time of disclosure, and then the disclosure shall be summarized in writing, marked "confidential", "proprietary" or the like and provided to University or a LC Member within twenty (20) days of initial disclosure ("Confidential Information"). Such confidentiality obligation shall be observed during the Membership Agreement period and for a period of three (3) years following the termination or expiration date of the Membership Agreement. Confidential Information shall be returned to the disclosing party upon request, however, University or a LC Member may retain an archive of any Confidential Information received under the Membership Agreement to demonstrate performance of its obligations hereunder.

The obligation to protect Confidential Information shall not apply to any information that: (i) is or becomes a part of the public domain through no act or omission of the receiving party in breach hereof; (ii) was in the receiving party's lawful possession prior to the disclosure and had not been obtained by the receiving party either directly or indirectly from the disclosing party; (iii) is lawfully disclosed to the receiving party by a third party without restriction on disclosure; (iv) is independently developed by the receiving party without reference to the other party's Confidential Information; (v) is released with written consent of the disclosing party; or (vi) is required to be disclosed by operation of law, provided, however, that the disclosing party be given an opportunity to oppose such disclosure.

B. Publication Review. Draft publications will be submitted for review and comment to any Members that participated in the MTC Project from which the publication emitted. Such review period shall be thirty (30) days prior to submission of the publication to a journal or other publisher for review. Comments will be duly considered. Authorship of publications will be determined based on contribution to the publication as determined by generally accepted academic principles.

C. Publications and Patent Protection. If a Member reviewing a publication so requests, there shall be a delay in publication for a period not to exceed sixty (60) days from the date of submission to the Member, to allow for a patent to be filed on information contained in the publication. A Member will make such request and justification for such delay in writing. Faculty and staff supported by MTC funding will provide a draft copy of each paper to the MTC Director in a timely fashion (in sufficient time, prior to publication or formal presentation) so that the above review process may take place.

**ARTICLE 7
INDEPENDENT CONTRACTS**

Nothing in these Terms and Conditions shall restrict a Member's right to negotiate and contract with the University independently of the MTC for any purpose.

**ARTICLE 8
INSURANCE AND INDEMNIFICATION**

A. University represents that the University has adequate liability insurance, such protection being applicable to officers, employees, and agents while acting within the scope of their employment by University. The University has no liability insurance policy as such that can extend protection to any other person.

B. Each Member hereby assumes any and all risks of bodily injury, including death and property damage attributable to the negligent acts or omissions of that party and the officers, employees, and agents thereof. Each Member (the "Indemnifying Member") shall, to the extent permitted by law, indemnify and hold the other Members harmless against any loss, damages, claims, penalties or expenses of any kind whatsoever (including costs and reasonable attorneys fees) sustained or incurred by another Member or other third party as a result of the negligent acts or omission of the Indemnifying Member. For clarity, this Article 8 is not intended to address issues relating to infringement of intellectual property rights.

C. Members understand that the University is an educational institution created under Article 8, Section 5 of the Michigan Constitution and operated pursuant to authority conferred by the State of Michigan. As a state institution the University is prohibited from lending the credit of the state pursuant to Article 9 of the Michigan Constitution. Members acknowledge that these Terms and Conditions do not confer upon Members any right of claim of indemnification by the University, either express or implied.

**ARTICLE 9
GOVERNING LAW**

These Terms and Conditions shall be governed and construed in accordance with the laws of the State of Michigan without reference to such state's conflicts of laws principles.

ARTICLE 10 EXPORT CONTROL COMPLIANCE

University and Members will comply with all applicable U.S. export control laws and regulations. The information that the University or Members may wish to disclose pursuant to these Terms and Conditions may be subject to the provisions of the International Traffic in Arms Regulations (“ITAR”) or the Export Administration Act of 1979 and the Export Administration Regulations (“EAR”) promulgated thereunder.

Each Member shall identify software, technology and technical data specifically listed in the U.S. Munitions List of the ITAR, the Commerce Control List of the EAR (“Controlled Item”) and/or export control list(s) of any country under which these Terms and Conditions are governed (“Controlled Item(s)"). Any Controlled Items that are identified during the course of a MTC Project shall be handled in the following manner:

- (A) The sending Member shall notify the other receiving Members of the Controlled Item’s classification prior to any shipment or transmission;
- (B) The Member receiving notice under (i) above shall have an opportunity to accept or reject the delivery of the Controlled Item prior to shipment or transfer by the sending Member;
- (C) The Members shall make reasonable efforts to cooperate implementing required internal controls for the involved Controlled Item, to effectively continue the relevant MTC Project;
- (D) Rejection of a Controlled Item shall not constitute a breach of these Terms and Conditions;
- (E) The MTC Director, in consultation with the appropriate LC Members, shall assess the impact of the rejection of the Controlled Item to determine if the relevant MTC Project can continue or not.

Any Controlled Item notice to be delivered to a Member shall be in writing and sent to that Member’s designated representative pursuant to their Membership Agreement.

ARTICLE 11 ANTI-CORRUPTION COMPLIANCE

University shall comply with, and shall cause its employees, directors, officers, agents, or any persons acting on their behalf to comply with all applicable laws and regulations, which may include, without limitation, the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act. In

particular, University commits that none of the investigators, University employees, or third-party agents performing work on any MTC Project funded pursuant to these Terms and Conditions will use any position as an employee, officer, or agent of a government or any department, agency, or instrumentality thereof to influence the award or continuation of business or other business advantage for any LC Member or any of their affiliates.

University and Members hereby represent, that in performing under these Terms and Conditions, that neither they, nor any person acting on their behalf has given, promised to give, offered to give, or will give, promise to give, or offer to give, any loan, gift, donation, payment, or other items of value directly or indirectly, whether in cash or in-kind, to or for the benefit of any government official and/or political party, to obtain or retain support or to secure any improper advantage for any Member.

University affirms that any Membership Dues shall be solely used for the bona fide and reasonable support of MTC Projects, or the establishment and maintenance of the MTF. Membership Dues shall not be used for the direct benefit of any individuals, except to the extent such dues will support the reasonable and customary salaries of individuals and be commensurate with actual work performed by such individuals on an MTC Project or in establishing and maintaining the MTF.

ARTICLE 12 MISCELLANEOUS

A. Modification of Terms and Conditions. Any agreement to change these Terms and Conditions in any way shall be valid only if made in writing and signed by the authorized representatives of University and all Leadership Circle Members as of the effective date of such change.

B. Headings. The section headings contained herein are for reference purposes only and shall not in any way affect the meaning or interpretation of these Terms and Conditions.

C. Survival. The rights and obligations of the University and Members under Articles 4 through 12 shall survive termination by any Member of its membership.



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MOBILITY TRANSFORMATION CENTER
MEMBERSHIP TERMS AND CONDITIONS

Exhibit A

MTC Leadership Circle Founding Members

1. Cisco Systems, Inc.
2. Continental Automotive Systems, Inc.
3. Delphi Automotive LLC
4. Denso International America, Inc.
5. Econolite Group, Inc.
6. Ford Motor Company
7. General Motors
8. Honda R&D Americas
9. Iteris, Inc.
10. Nissan North America
11. Qualcomm Technologies, Inc.
12. Robert Bosch LLC
13. Ryder
14. State Farm
15. Toyota Motor Engineering & Manufacturing North America, Inc.
16. Verizon
17. Volkswagen Group of America
18. Xerox