Cautions on Handling
Dynamic Map Large-Scale Field Operational Test Consortium

SIP Large-Scale Field Operational Test TF

"Strategic Innovation Promotion Program (SIP) for Automated Driving Systems/Large-Scale Field Operational Test/Dynamic Map“

a. Dynamic map prototyping and preparation and establishment of center functions and updating methods, etc.
c. Large-scale field operation test implementation and management

2017 verification results report

March 22, 2018

Dynamic Map Large-scale Field Operational Test Consortium

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1．Progress schedule

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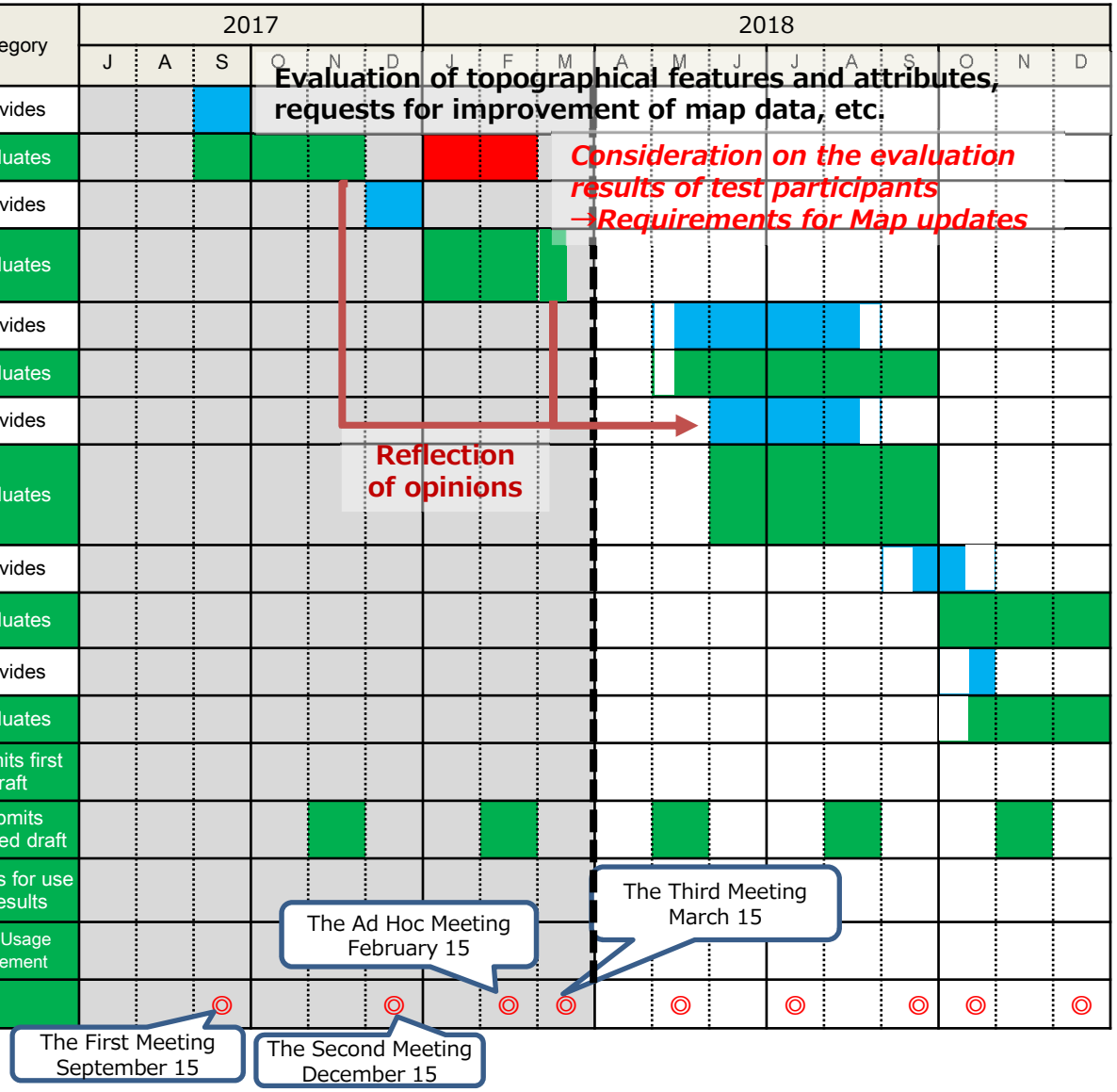
Major category	Minor category	Provided data, tools, etc.	Category
Provision and evaluation of dynamic map data and tools	Static, high-accuracy 3D map data	Static, high-accuracy 3D map data (300km) +viewer	Provides
			Evaluates
		Static, high-accuracy 3D map data (758km) ＋ viewer ＋API (step 1)	Provides
			Evaluates
		Static, high-accuracy 3D map data （updating data)	Provides
			Evaluates
		Static, high-accuracy 3D map data （updating data that reflects requests for improvements)	Provides
			Evaluates
	Semi-static and semi-dynamic information	Semi-static and semi-dynamic information ＋ viewer ＋API (step 2)	Provides
			Evaluates
	Dynamic information	Dynamic information	Provides
			Evaluates
Provision of documents	Preparation and updating of test plan		Submits first draft
			Submits updated draft
	Application for use of results/ Dynamic Map Field Operational Test-related Map Data Usage Agreement		Applies for use of results
			Data Usage Agreement
Meetings	Dynamic Map Field Operational Test WG		



2．Dynamic Map Large-Scale Field Operational Test area Preparation status

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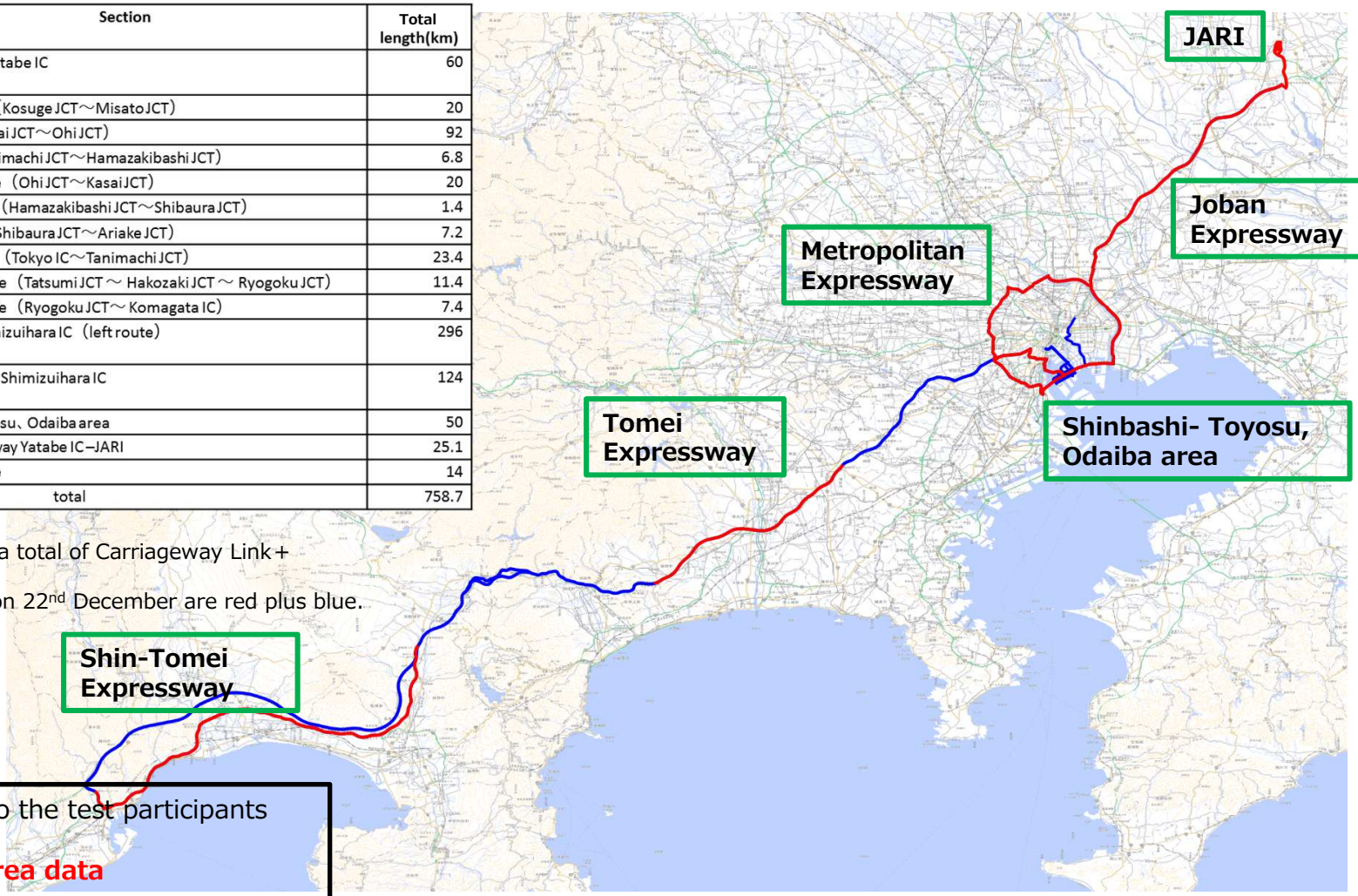
Dynamic Map Large-Scale Field Operational Test Consortium

All areas provided : Distributed to the test participants on December 22nd.

Route name	Section	Total length(km)
Joban Expressway	Misato JCT－Yatabe IC	60
Metropolitan Expressway	Misato Route（Kosuge JCT～Misato JCT）	20
	C2 Route（Kasai JCT～Ohi JCT）	92
	C1 Route（Tanimachi JCT～Hamazakibashi JCT）	6.8
	Bayshore Route（Ohi JCT～Kasai JCT）	20
	Haneda Route（Hamazakibashi JCT～Shibaura JCT）	1.4
	Daiba Route（Shibaura JCT～Ariake JCT）	7.2
	Shibuya Route（Tokyo IC～Tanimachi JCT）	23.4
	Fukagawa Route（Tatsumi JCT～ Hakozaki JCT～ Ryogoku JCT）	11.4
	Mukojima Route（Ryogoku JCT～ Komagata IC）	7.4
Tomei Expressway	Tokyo IC－Shimizuihara IC（left route）	296
Shin-Tomei Expressway	Gotemba JCT－Shimizuihara IC	124
ordinary roads	Shibashi～Toyosu、Odaiba area	50
	Joban Expressway Yatabe IC–JARI	25.1
	JARI test course	14
total		758.7

Note.
“Total length(km)” is a total of Carriageway Link＋Intersection Area.
The date distributed on 22nd December are red plus blue.



Data distributed to the test participants includes
1. Experiment area data
2. API (step 1)
3. Dynamic Map Viewer

Digital Map published by Geospatial Information Authority is used as a background map

3. Dynamic Map Field Operational Test tool (API and viewer) development status

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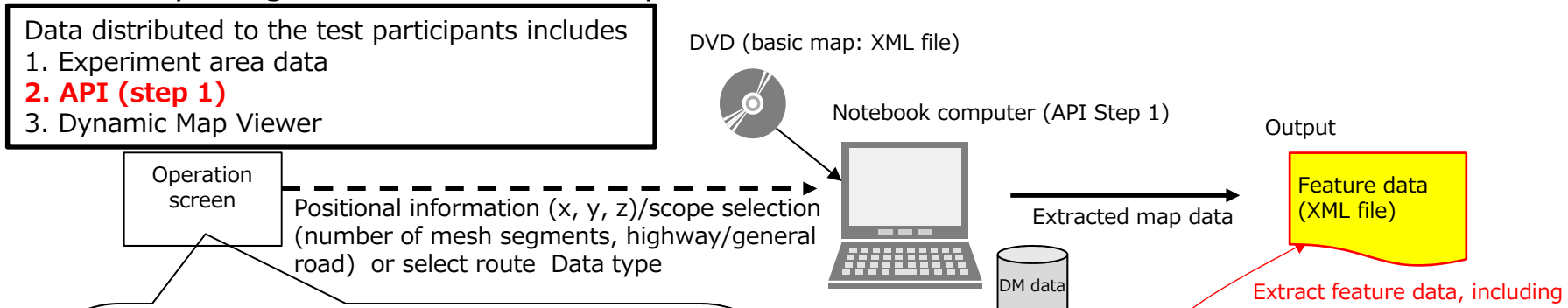
3.1 API (step 1)

Based on positioned information (x, y, z) and ID information, topographical data classified with individually designated data of base map.

Data distributed to the test participants includes
1. Experiment area data
2. API (step 1)
3. Dynamic Map Viewer



(Route selection view example) When selecting routes, select route names and segments.

Route name	Section
Joban Expressway	Misato Junction – Yatabe Interchange
Metropolitan Expressway	Misato Route (Kosuge Junction – Misato Junction)
	C2 (Kasai Junction – Oi Junction)
	C1 (Tanimachi Junction – Hamazakibashi Junction)
	Bayshore Route (Oi Junction – Kasai Junction)
	Haneda Route (Hamazakibashi Junction – Shibaura Junction)
	Daiba Route (Shibaura Junction – Ariake Junction)
	Shibuya Route (Tokyo Interchange – Tanimachi Junction)
Tomei Expressway	Tokyo Interchange – Shimizu Ihara Interchange (left route)
Shin-Tomei Expressway	Gotemba Junction - Shimizu Ihara Interchange
General roads	Shinbashi to Toyosu, Odaiba area
	Joban Yatabe Interchange to JARI entrance
	JARI entrance to JARI test course interior

Feature data
* Road shoulder
* Road center line
* Lane line
* Carriageway edge
* Stop line
* Pedestrian crossing
* Road marking
* Traffic signal
* Road sign
* Carriageway link
* Lane link
* Intersection lane link
* Area-formed intersection
* CRP node

3. Dynamic Map Field Operational Test tool (API and viewer) development status

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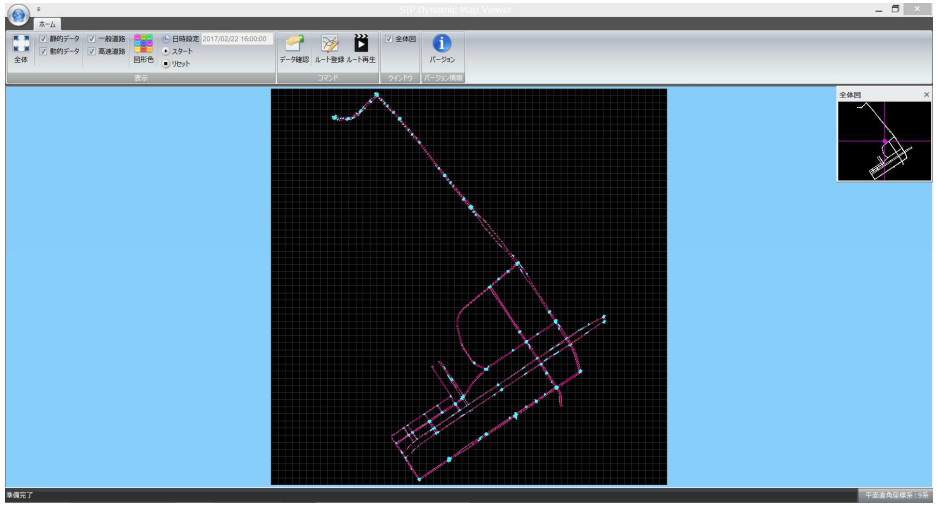
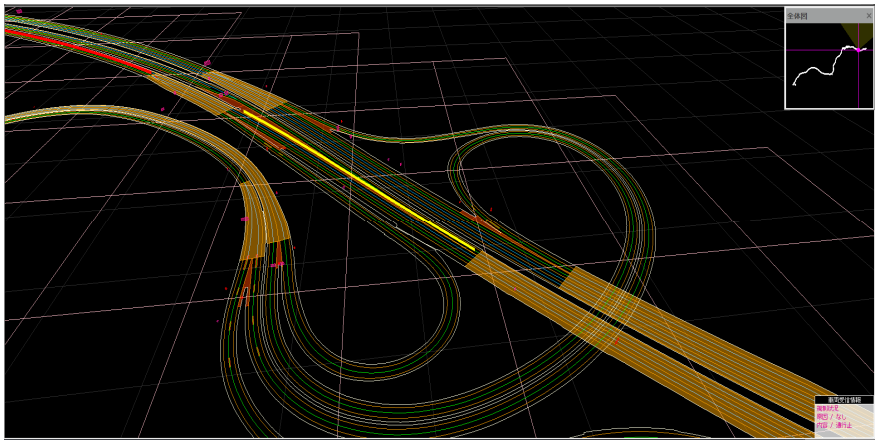
3.2 Viewer

Additional function : Displaying an area of specified XML file

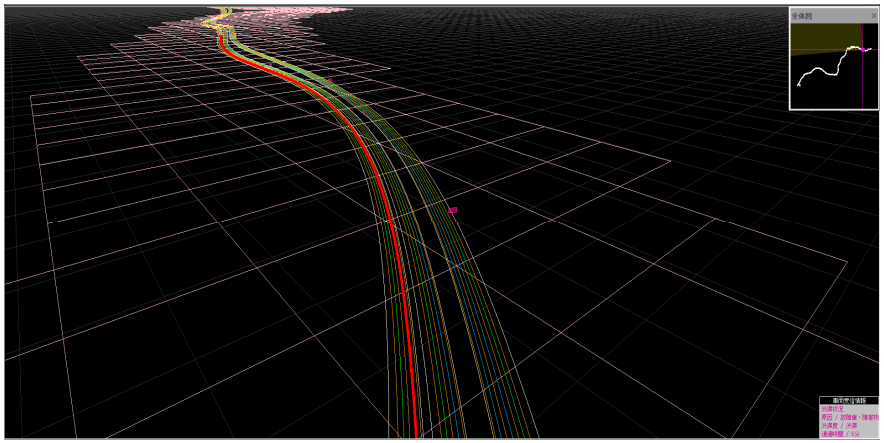
Data distributed to the test participants includes
1. Experiment area data
2. API (step 1)
3. Dynamic Map Viewer



Dynamic Map Viewer



Display Sample 1



Display Sample 2

4. Experiment implementation process for updating and delivering dynamic map static information

The process used to examine testing of the updating and delivery of dynamic map static information (high-accuracy 3D maps) was as indicated below.

(1) Use cases

(2) Requirements for map update

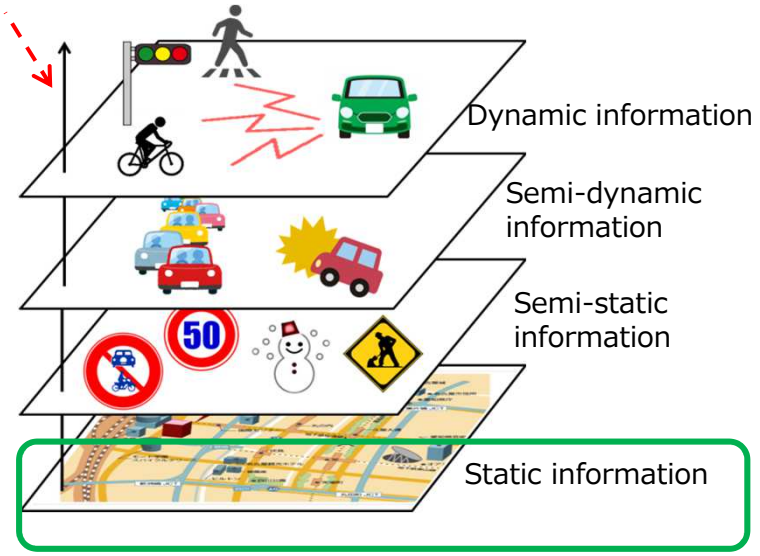
(3) Update rules and what information to add to high-accuracy 3D maps, etc.

Suggestions

Comments

Test participants

Location reference method



Examination of update scope and conditions for this section

4. Experiment implementation process for updating and delivering dynamic map static information

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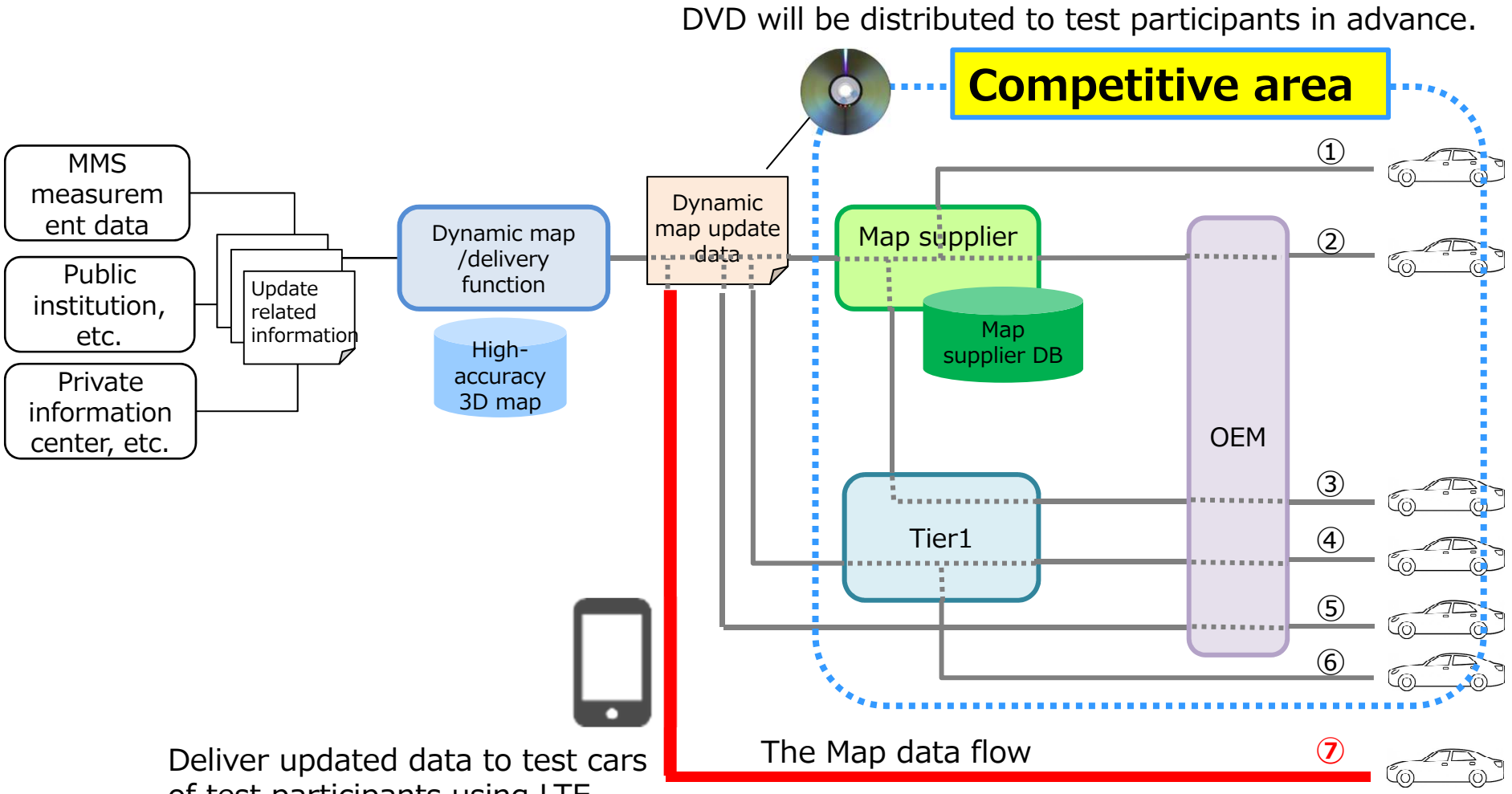
Embodiment of an experiment for map date updates.



5． Test participants Driving results (October to March)

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【General road / Metropolitan Expressway】

Road	Start point	End point	October	November	December	January	February	March
ordinary roads	Bayshore area	Bayshore area	3	7	3	0	2	1
	Yatabe IC	JARI					2	10
ordinary roads Total			3	7	3	0	4	11
Metropolitan Expressway	All areas			1	2	1		
	C2 Route	C2 Route		4			4	21
	C2 Route	Bayshore Route						2
	Shibuya-sen	C1						2
	Rinkai-Fukutoshin IC	C2 Route		3				
	Ohi JCT	Kasai JCT		4			1	2
	Kosuge JCT	Misato JCT				3		
	Misato IC	Kosuge JCT				3	1	2
	Daiba IC	Yoga IC		4				
	Daiba IC	Tokyo IC		1				
	Shibaura JCT	Hamazakibashi JCT				3		
	Shibaura JCT	Misato JCT					1	
	Shibaura JCT	Ariake JCT					1	2
	Hamazakibashi JCT	Tanimachi JCT				3		
	Hamazakibashi JCT	Ariake JCT					1	15
	Hamazakibashi JCT	Shibaura JCT					1	2
	Tanimachi JCT	Hamazakibashi JCT				3	2	17
	Tanimachi JCT	Kasai JCT		1				
	Tanimachi JCT	Yoga IC		1				
	Tanimachi JCT	Tokyo IC		1		3		
	Yoga IC	Ohashi JCT					2	6
	Tokyo IC	Tanimachi JCT		1		3	2	17
	Tokyo IC	Misato JCT					1	10
	Tokyo IC	Ariake IC					1	
	Ohashi JCT	Tokyo IC					1	
	Tatsumi JCT	Ryougoku JCT					1	2
	Ryougoku JCT	Komagata IC					1	2
	Komagata IC	Ariake JCT					2	
	Ariake IC	Komagata IC	4	5	2		2	
	Ariake IC	Hakozaki JCT	1					
	Ariake IC	Tatsumi JCT				3		
	Ariake IC	Shibaura JCT				3		
	Ariake IC	Ohashi JCT					1	
	Ariake IC	Kasai JCT					2	15
	Kasai IC	Ohi JCT	1				1	2
Metropolitan Expressway Total			6	25	4	28	29	119

※ Numbers in the cell : No. of companies which conducted a driving test × days of driving.

※ 20th. Feb, 2018 Dated on.

※ Driving tests planed on 2nd. February.

5． Test participants Driving results (October to March)

Cautions on Handling
Dynamic Map Large-Scale Field Operational Test Consortium

【Joban Expressway / Shin-Tomei Expressway / Tomei Expressway】

Road	Start point	End point	October	November	December	January	February	March
Joban Expressway	Misato JCT	Yatabe IC					2	10
	Yatabe IC	Misato JCT					1	2
	Kosuge JCT	Nagareyama IC					2	6
	Kosuge JCT	JARI				2		
Joban Expressway Total			0	0	0	2	5	10
Shin-Tomei Expressway	Shin-Simizu JCT	Shimizuihara IC	2	5		2		5
	Shimizuihara IC	Shin-Fuji IC		1				
	Shin-Fuji IC	Shimizu JCT		1				
	Gotemba JCT	Shimizuihara IC	3	6	2	2		
	Gotemba JCT	Shin-Simizu JCT		2				
	Gotemba JCT	Shimizu JCT					1	2
	Atsugi IC	Shin-Simizu JCT	1					
Shin-Tomei Expressway Total			6	15	2	4	1	7
Tomei Expressway	All areas			1				
	Shimizuihara IC	Gotemba JCT				3		
	Shimizuihara IC	Tokyo IC				1		
	Shimizu JCT	Atsugi IC					2	6
	Shimizu JCT	Tokyo IC		1				
	Susono IC	Oi-Matsuda IC		1				
	Gotemba JCT	Shimizuihara IC					1	12
	Gotemba JCT	Shimizu JCT						2
	Gotemba JCT	Hadano-Nakai IC				3		
	Hadano-Nakai IC	Gotemba JCT	3	3	2			
	Hadano-Nakai IC	Oi-Matsuda IC			1			
	Hadano-Nakai IC	Yokohama machida IC				3		
	Yokohama machida IC	Hadano-Nakai IC						2
	Yokohama machida IC	Tokyo IC				3	2	
	Yokohama-Aoba IC	Gotemba JCT					1	10
	Yokohama-Aoba IC	Shimizu JCT	2	3		2		5
	Yokohama-Aoba IC	Yokohama machida IC		2				
	Yokohama-Aoba IC	Tokyo IC					2	25
	Atsugi IC	Tokyo IC	1					
	Atsugi IC	Gotemba JCT				1		
	Tokyo IC	Yokohama machida IC	4	5	2	1	1	
	Tokyo IC	Gotemba JCT		1		1		
	Tokyo IC	Shimizu JCT					1	2
	Tokyo IC	Shimizuihara IC		5				
Tomei Expressway Total			10	21	5	18	10	64

※ Numbers in the cell : No. of companies which conducted a driving test × days of driving.

※ 20th. Feb, 2018 Dated on.

※ Driving tests planed on 2nd. February.

5． Test participants driving results (Test Situation)

Source: Mitsubishi Electric Corporation

Source: Continental Automotive Corporation

Source: Saitama Institute of Technology

6．Evaluation results of Static high-accuracy 3D map data

Upon analyzing the comments from test participants, basic information is provided below and their results are provided in Table 1.

(1) Total test participants: 19 (Among those who test participants submitted evaluation sheet was 18.)

- ✓ Domestic OEM: 7
- ✓ Foreign OEM: 3
- ✓ Domestic Supplier: 3
- ✓ Foreign Supplier: 2
- ✓ University/Other: 4 (One of the test participants didn't submit evaluation sheet.)

(2)Legend of the static high-accuracy 3D map data evaluation results(Table1.)

- ✓ Selected “Used the feature” and “Sufficiently usable in current state.”:○
- ✓ Selected “Used the feature” and “Acquisition standards and attributes should be reviewed and revised.” : △
- ✓ Not evaluated : —

Note:
If test participants selected even one “Used the Feature” in the all use cases of the feature, it was counted as “Used the Feature.”
If test participants selected even one “Acquisition standards and attributes should be reviewed and revised” in the utilized use cases of the feature, it was counted as “Acquisition standards and attributes should be reviewed and revised.”
Use-case means 18 kinds of Use-cases provided by SIP map structuring TF in FY 2015.
Acquisition standards are explained in SIP Map data specifications for FY 2015.

(3) To analyze from the test participants results, we individually interviewed the test participants to confirm of meanings of comments and intentions. This process is still being continued.

6．Evaluation results of Static high-accuracy 3D map data (300km)

Table 1. Evaluation Results and usage situation of the feature

Test Participants	Stop Line	Pedestrian Crossing	Traffic Signal	Road Shoulder	Center Line	Lane Line	Lane Edge	Road Marking	Road Signage	Carriageway Link	Lane Link	Intersection Lane Link	Intersection Area	The others
A	△	△	△	○	—	△	○	△	—	△	△	△	—	—
B	—	—	△	○	—	○	△	—	△	△	○	△	○	—
C	○	○	○	○	△	△	△	○	△	○	○	△	○	△
D	○	○	○	○	○	○	○	○	△	○	○	○	○	—
E	—	—	—	—	△	○	—	—	△	○	○	—	—	—
F	○	—	○	○	○	○	○	○	○	○	○	○	○	○
G	○	○	○	○	○	○	○	○	○	○	○	○	○	○
H	△	—	△	△	—	—	—	△	△	—	△	△	△	△
I	—	—	—	—	—	△	△	—	—	△	△	△	—	○
J	△	△	△	△	△	△	△	△	△	○	△	△	○	○
K	△	△	○	△	△	△	△	△	○	△	△	△	△	○
L	○	○	○	—	○	—	—	—	—	—	—	—	—	—
M	○	○	○	○	○	○	○	○	○	○	○	○	○	○
N	—	—	—	△	—	○	○	○	△	○	○	△	—	—
O	○	○	○	○	○	○	○	△	○	○	○	△	○	—
P	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Q	○	○	○	○	○	○	○	—	—	○	○	○	○	—
R	Not evaluated													
S	Not evaluated													

6．Evaluation results of Static high-accuracy 3D map data (758km)

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Table 1. Evaluation Results and usage situation of the feature

Test Participants	Stop Line	Pedestrian Crossing	Traffic Signal	Road Shoulder	Center Line	Lane Line	Lane Edge	Road Marking	Road Signage	Carriageway Link	Lane Link	Intersection Lane Link	Intersection Area	The others
A	△	△	△	○	○	△	○	△	—	△	△	△	—	—
B	—	—	△	○	—	△	△	—	△	△	○	△	○	—
C	○	○	○	○	△	△	△	○	△	○	○	△	○	○
D	○	○	○	△	○	○	○	△	△	—	○	△	△	—
E	—	—	—	—	△	○	—	△	—	○	○	—	—	—
F	○	○	○	○	○	○	○	○	○	○	○	○	○	○
G	Not evaluated													
H	△	○	△	—	—	—	—	△	△	—	△	△	△	○
I	—	—	—	—	—	△	△	—	—	△	△	△	—	○
J	—	—	—	△	—	△	△	△	△	○	△	○	○	○
K	—	—	○	△	○	○	○	○	○	○	○	○	△	○
L	Not evaluated													
M	○	○	○	○	○	○	○	○	○	○	○	○	—	—
N	○	○	○	△	○	○	○	○	○	—	○	△	—	—
O	○	○	○	○	○	○	○	△	○	○	○	○	○	—
P	—	—	—	○	○	○	○	—	○	○	○	—	—	—
Q	Not evaluated													
R	—	—	○	○	○	○	○	○	○	○	○	○	○	—
S	Not evaluated													

6. Evaluation results of Static high-accuracy 3D map data (Considerations)

- Essential features in the SIP Specification were evaluated as “Sufficiently usable in current state.”
- Some tests participants want to add extended features to the static high-accuracy 3D map data.

The features defined in the specifications were evaluated as “Sufficiently usable in current state.”

7 . Improvement requests for Static high-accuracy 3D map data (300km)

■ Improvement requests for Static high-accuracy 3D map data are shown below.

- The following improvement requests were received for a total of 9,644 road signs, traffic signals, and road markings.

Table 2. Types and numbers of improvement requests

Type of request	Quantity
1: Existed when data was generated (Is not currently believed to exist)	10
2: Did not exist when data was generated (Is currently believed to exist)	4
3: Outside design scope	4
4: Not displayed in viewer (Bug in which data exists but is not displayed)	1
5: Position confirmed in viewer is incorrect (No problem in data or viewer)	2

Table 3. Number of features in static high-accuracy 3D map data (300km)

	Expressway	General road
Road marking	1,560	2,954
Sign	2,756	1,599
Traffic signal	137	638
Total	4,453	5,191

7 . Improvement requests for Static high-accuracy 3D map data(758km)

■ Improvement requests for Static high-accuracy 3D map data are shown below.

- The following improvement requests were received for the total of 20,991 road signs, traffic signals, and road markings.

Table 4. Number of features in static high-accuracy 3D map data (758km)

	Expressway	General road
Road marking	6,196	3,927
Sign	7,827	1,895
Traffic signal	381	765
Total	14,404	6,587

Item 1. Road sign

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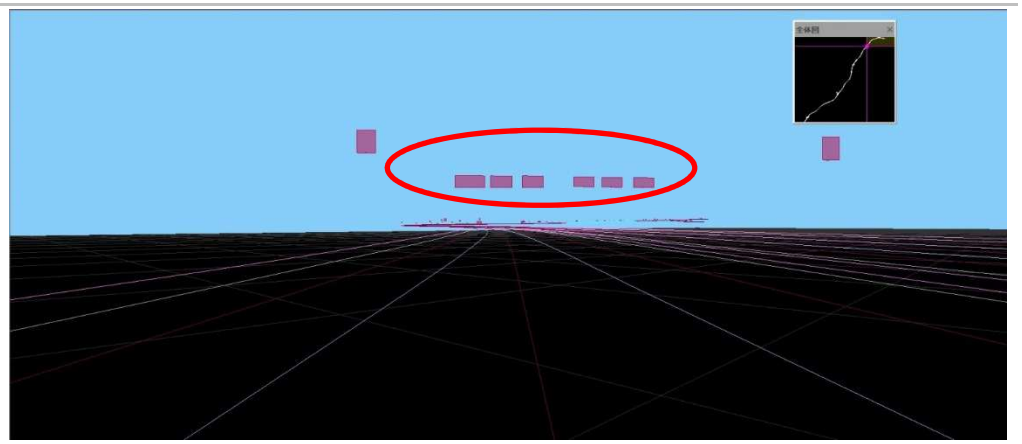


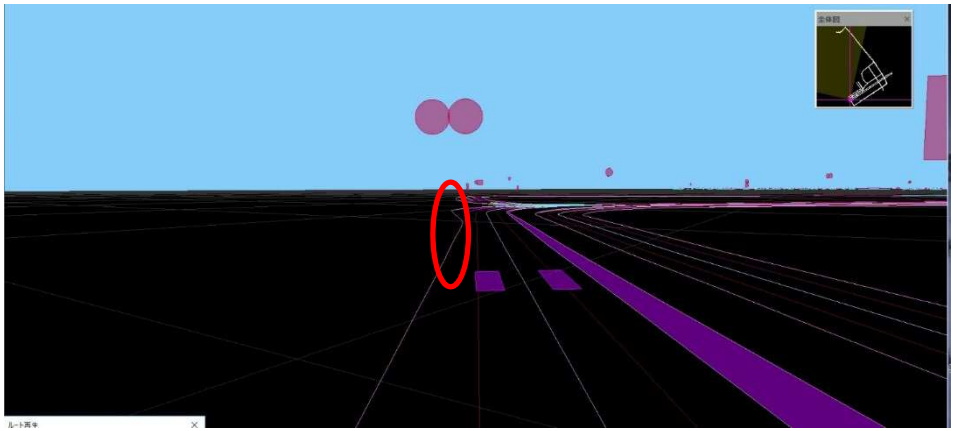
(4) Non-existent sign on Tomei Expressway Yokohama Machida Interchange -Tokyo Interchange: 5 kilometers from the Tokyo Interchange

Results of confirmation of source information

The sign existed in the source information

= Degradation since the data was designed

Item 2. Road marking

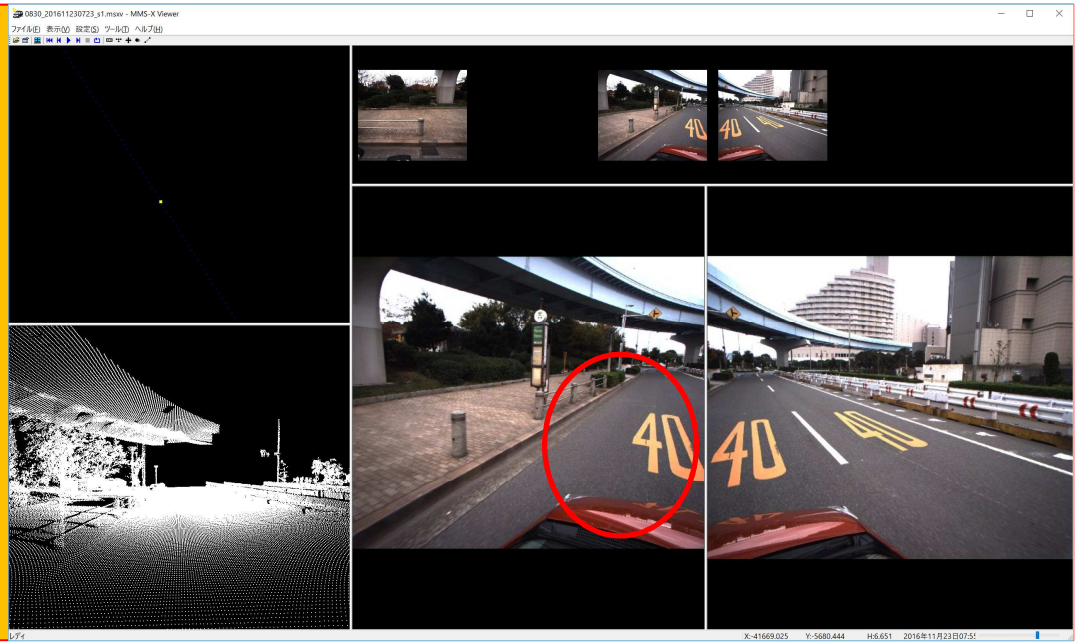


(21) No bus stop road marking on Aqua City Peripheral Route 482 (general road) near Shiokaze Park

Results of confirmation of source information

The road marking did not exist in the source information

= Degradation since the data was designed



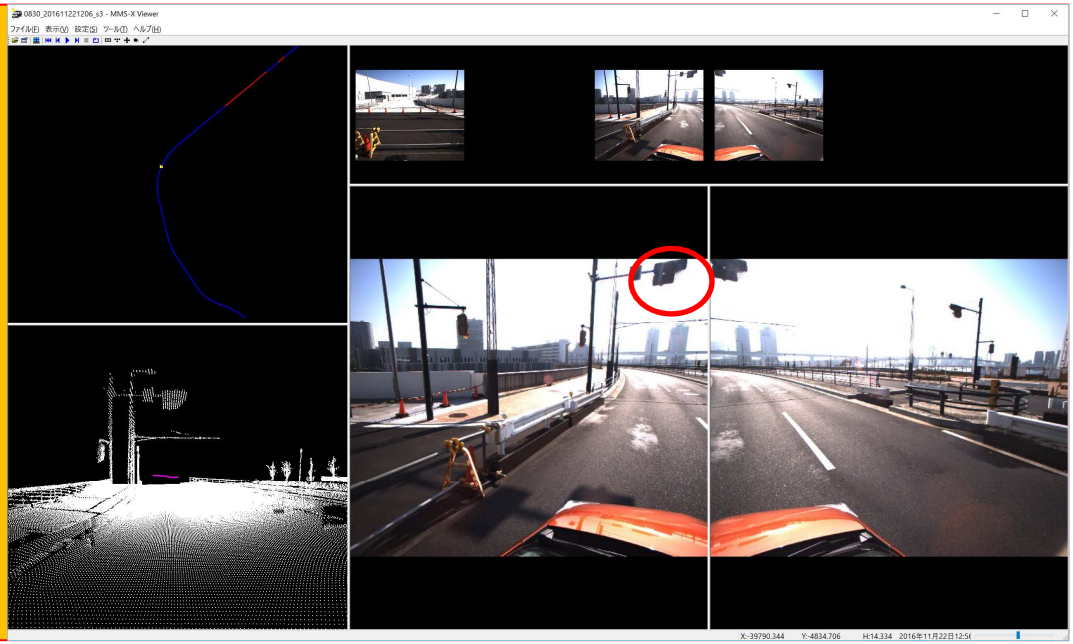
Item 3. Traffic signal

(18) There is a new traffic signal on Ariake area Route 484 (general road) near Toyosu Shijo Fujimibashi

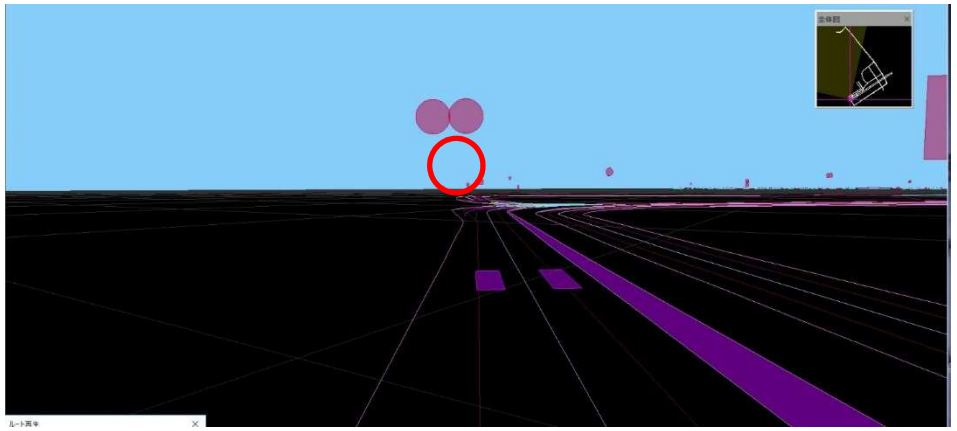
Results of confirmation of source information

The traffic signal existed in the source information

= The traffic signal is a newly installed traffic signal and is not in use yet, so it falls outside the design scope



Item 4. Road sign



(17) No sign on Aqua City Peripheral Route 482 (general road) near Shiokaze Park

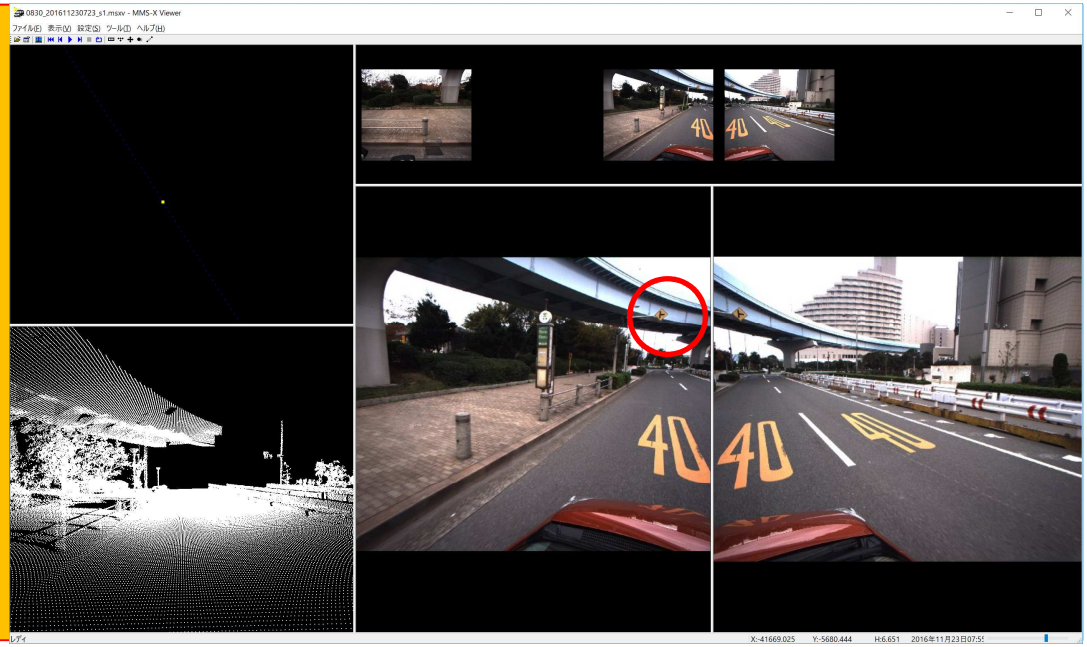
Results of confirmation of source information

The sign existed in the source information

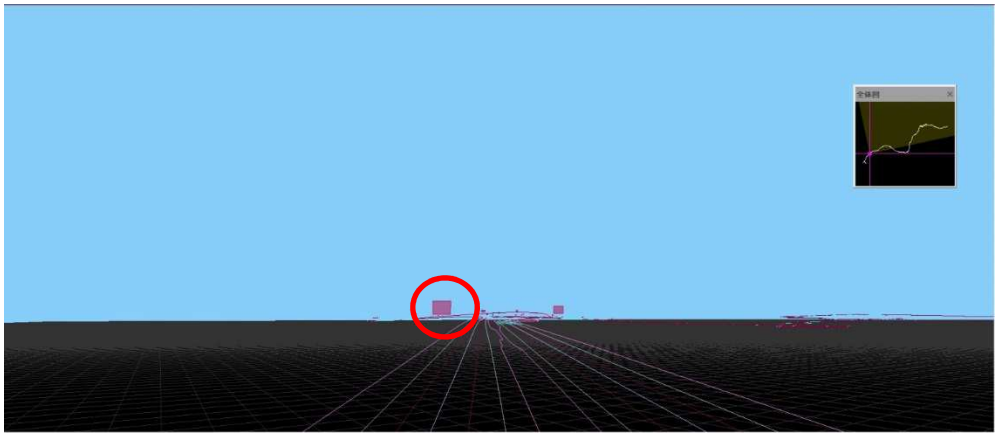
The corresponding sign was designed according to the standard in the map DB

The feature was hidden in the viewer

-> The viewer has been corrected and the above problem has been resolved in the version provided in December



Case 5. Road sign



(11) Non-existent sign on Tomei Expressway Shimizu Ihara Interchange-Hadano Nakai Interchange: a little way beyond the Shin-Shimizu Interchange entrance merging area

Results of confirmation of source information

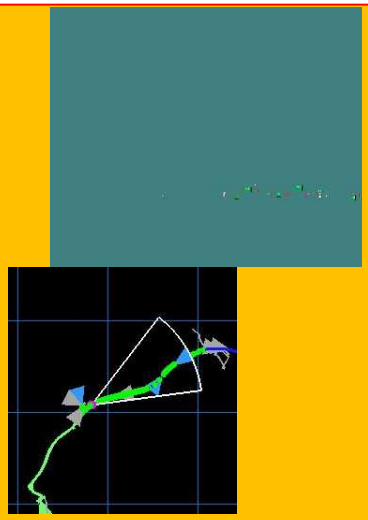
The sign did not exist in the source information

The sign also did not exist in the map DB

The viewer is believed to be displaying Shimizu

Parking instead of the Shin-Shimizu Interchange

(see next page)



7 . Improvement requests for Static high-accuracy 3D map data(Policy)

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Findings about the features

- 300km (It was measured in FY2016.) → As Over one year has passed since the measurement of the map data, a difference has occurred between the map data and the actual road features.
- 758km (It was measured in FY2016 to FY2017.) → The actual road features change in only 3 to 4 months after measuring the map data.
  - ✓ There are features changed.
  - ✓ Consider seasons with high frequent change the actual road.

Solutions for number of features, and category for essential or extended of features (For example)

A) Features with rare changes (Essential)
B) Features utilized even with many changes (Quasi-essential)
C) Other features (Extended)

- Frequency of the map data update
- Target features for map data updates

To make update map data proposal

8. Overview of Dynamic Map Field Operational Test Working Group

Meeting	Date and time	Main agenda items
1st	Friday, September 15, 2017 10:00 AM to 12:00 PM	1. Report of Field Operational Tests plan (compiled by the Secretariat) 2. Explanation of methods of evaluation of the dynamic map (API specifications (draft version), guide to provision of viewers, methods of evaluation of static, high-accuracy 3D map data, etc.) 3. Other items and Q&A
2nd	Friday, December15, 2017 14:00 PM to 16:00 PM	1. Confirmation of minutes of previous meeting 2. Progress report on the Field Operational Tests 3. Guide to Provision of API (step 1), basic map (600km) and viewer 4. Requirements for the map update 5. Explanation of draft interim report (effectiveness of static, high-accuracy 3D map data) 6. Other items and Q&A
Ad Hoc Meeting	Thursday, February15,2018 14:00PM to 15:30PM	1. Future schedule of the Dynamic Map Large-Scale Field Operational Test 2. Map update data 3. Semi-dynamic information evaluation environment 4. Receiving terminal configuration
3rd	Thursday, March 15, 2018 14:00 AM to 16:00 PM	1. Progress report on the Field Operational Tests 2. Static high-accuracy 3D map data evaluation results 3. Map update data 4. The purpose of Dynamic Map Large-Scale Field Operational Test 5. About dynamic, semi-dynamic and semi-static data 6. Provide information of the receiving terminal

9. Main inquiries from test participants and number of inquiries

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Main inquiries from test participants and number of inquiries

Contents	Quantity
1:About the approaches to Dynamic Map Field Operational Tests	29
2:About the tests/Evaluation	13
3:About the map data/The map data specification	47
4:About the way map data delivery	11
5:About the office procedure	109
6:About the Dynamic map viewer	19
7:About the API	5
Total	233

Date.2018-2-20

The Dynamic Map Large-Scale Field Operational Test Consortium earnestly answer each inquiries to build credibility with the test participants.

Reference: About the features in the SIP Specification

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SIP specification features (34 kinds)

Specification	No.		Feature	Essential/Extended Feature	Requested features of test participants
SIP Specification : 34 features ※Those with yellow background are essential features (included in data-prepared 758 km)	1	1	Road Edge (Road Shoulder)	Essential	○
	2		Streetcar Stop	Essential	○
	3		Toll Islands	Essential	○
	4		Pedestrian Walkway Kerb	Essential	○
	5		Emergency Parking Zone	Essential	○
	6-1	2	Demarcation Line : Center Line	Essential	○
	6-2	3	Demarcation Line : Lane Line	Essential	○
	6-3	4	Demarcation Line : Lane Edge Line	Essential	○
	7	5	Stop Line	Essential	○
	8	6	Pedestrian Crossing	Essential	○
	9	7	Road Marking	Essential	○
	10		Streetcar Stop(Marking); Road Marking	Essential	○
	11		Channelising Island	Essential	○
	12	8	Traffic Signal	Essential	○
	13	9	Road Sign	Essential	○
	14	10	Carriageway Link	Essential	○
	15	11	Lane Link	Essential	○
	16	12	Intersection Lane Link	Essential	○
	17	13	Intersection Area	Essential	○
	18		Rail Crossing	Essential	○
	19		Tram Laying	Extended	
	20		Parking Zone	Extended	
	21		Parking Slot Zone	Extended	
	22		Parking Slot Line	Extended	
	23		Guardrail	Extended	
	24		Cat Eye	Extended	
	25		Speed Breaker	Extended	
	26		Delineator	Extended	
	27		Rubber Pole	Extended	
	28		Road Light	Extended	
	29		Utility Pole	Extended	
	30		Milestone Post	Extended	
	31		Carriegeway Node	Extended	○
	32		Lane Node	Extended	○
	33		Carriageway Belt	Extended	
	34		Lane Belt	Extended	○

SIP specificatiuon features +JAMA recommended features, etc. (24 kinds)

Specification	No.		Feature	Essential/Extended Feature	Requested features of test participants
SIP Specification : Other Fetures and Attribures	35	14	Common Location Reference Node ⇒Marker Point	Essential	–
	36		Road Signage's Regulation	Extended	○
	37		Road Marking's Regulation	Extended	○
	38		Auxiliary Sign	Extended	
	39		Restriction	Extended	○
	40		Prohibited Position on Carriageway(Carriageway Link)	Extended	○
	41		Prohibited Position on Lane (Lane Link)	Extended	○
	42		Attributes of Lane Link Road Structure ⇒Curvature radius	Extended	○
	43		Attributes of Lane Link Road Structure ⇒Gradient Slope	Extended	○
	44		Attributes of Lane Link Road Structure ⇒Transverse Slope	Extended	○
	45		Attributes of Carriageway Link Road Structure ⇒Attributes of Horizontal Direction ⇒Clothoid Curve	Extended	
	46		Attributes of Carriageway Link Road Structure ⇒Attributes of Horizontal Direction ⇒Circular Curve	Extended	
	47		Attributes of Carriageway Link Road Structure ⇒Attributes of Horizontal Direction ⇒Linear Portion	Extended	
	48		Attributes of Carriageway Link Road Structure ⇒Attributes of Gradient Slope ⇒Monocline Section	Extended	
	49		Attributes of Carriageway Link Road Structure ⇒Attributes of Gradient Slope ⇒Curve Section	Extended	
	50		Attributes of Carriageway Link Road Structure ⇒Attributes of Transverse Slope	Extended	
	51		Road Section ID Information	Extended	
	52		DRM Link Information	Extended	
	53		VICS Link Information	Extended	
	54		Connection Point Information	Extended	
Specification of Japan Automobile Manufacturers Association, Inc	55		Existence of Overlay (Tunnel, Shed, etc.)	Extended	○
	56		Lane Edge	Extended	
	57		Road Marking(code)	Extended	
	58		Tunnel height restriction	Extended	○
	59		Underpass height restriction	Extended	
	60		Bridge width	Extended	
	61		Drivable area within tunnel	Extended	
	62		Special Cars Drivable Road	Extended	
	63		ETC Gate	Extended	
	64		Stop Line(two-wheeled)	Extended	
	65		Two step rightward turning stop line for scooters	Extended	
	66		Bus Stop	Extended	○
	67		Bus Lane	Extended	
	68		Bus Priority Lane	Extended	
	-		Parking Prohibition Area		○
	-		Traffic Mirror		○
	-		Information of Road Surface		○

※ Features with yellow background are introduced in the data this time.