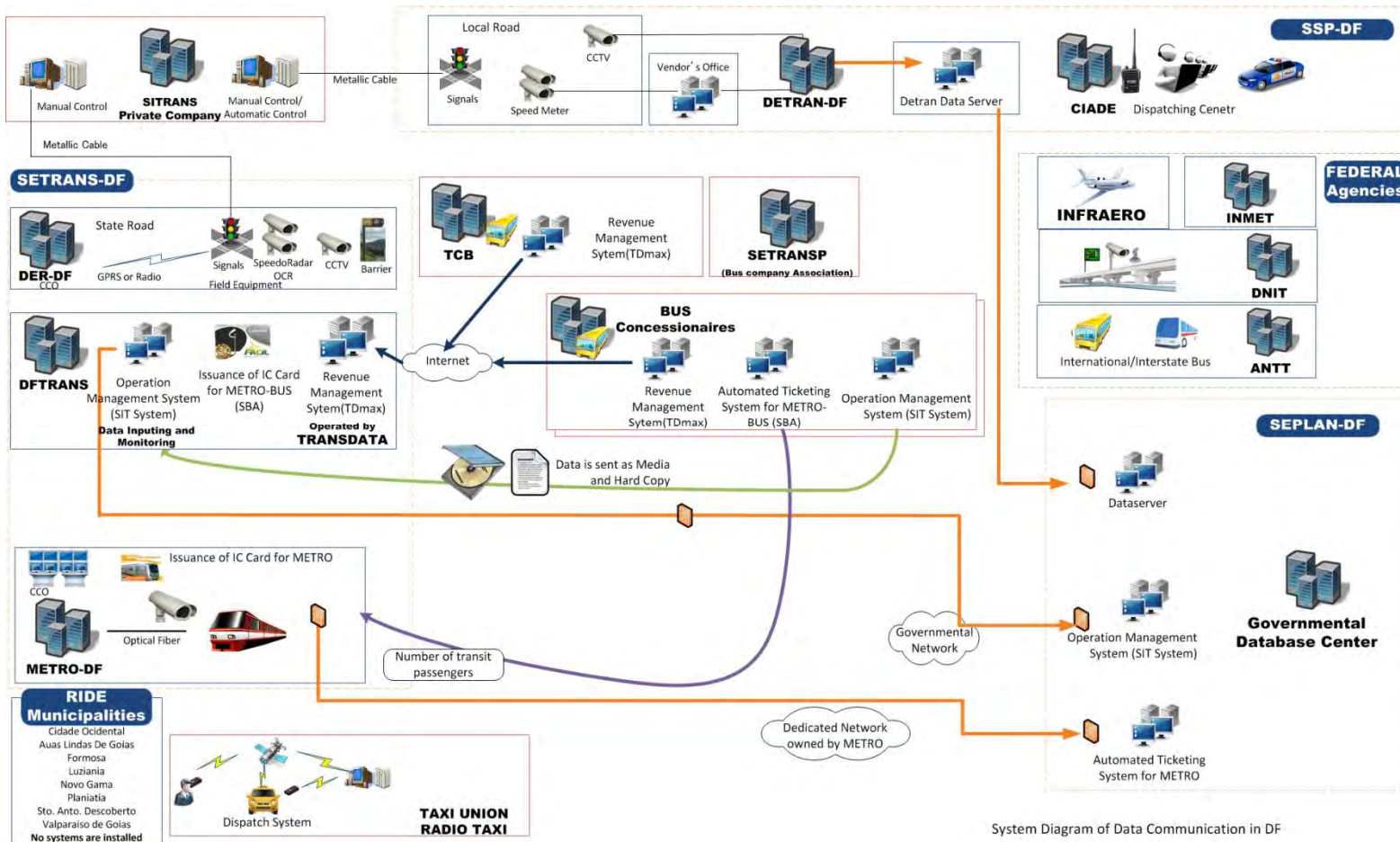


V. Current Condition of ITS

1) ITS Related Agencies of Federal District

System Diagram



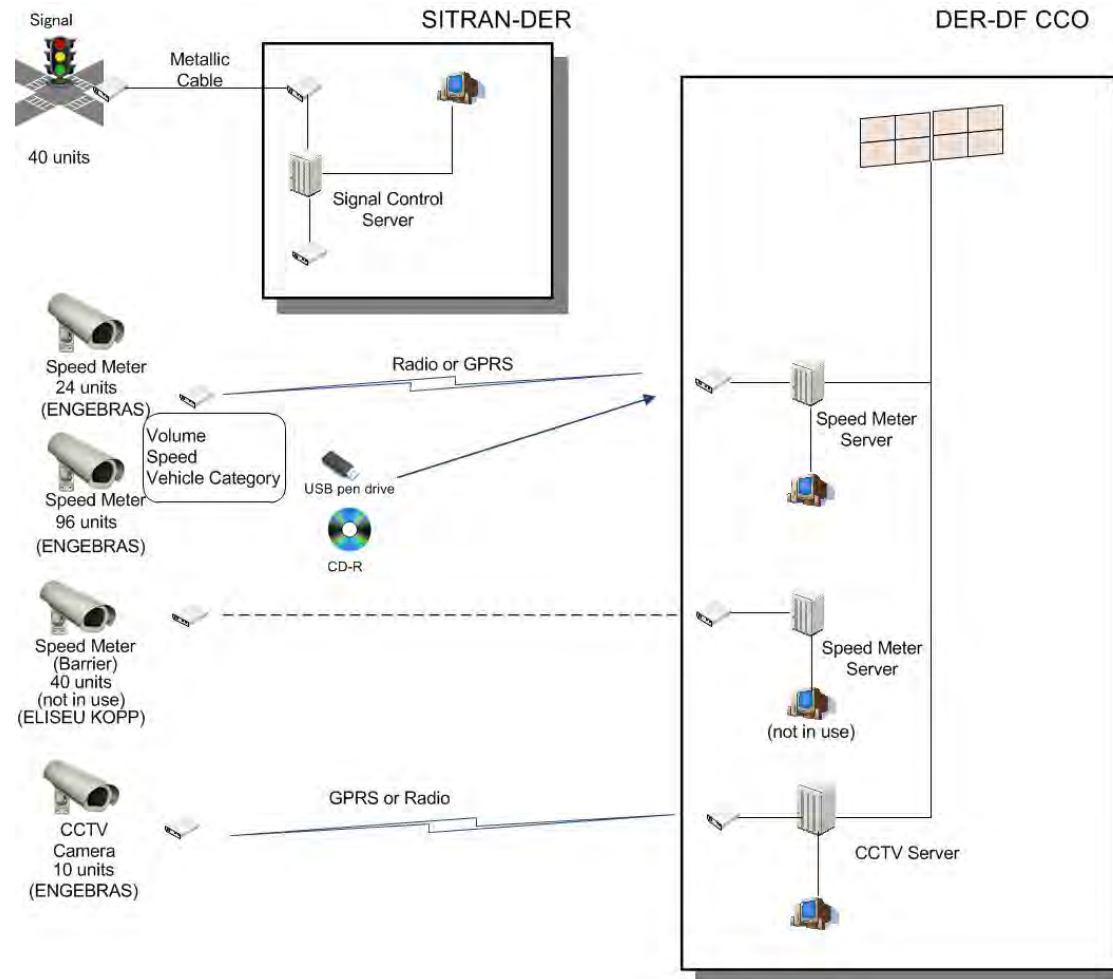
System Diagram of Data Communication in DF



V. Current Condition of ITS

1) ITS Related Agencies of Federal District

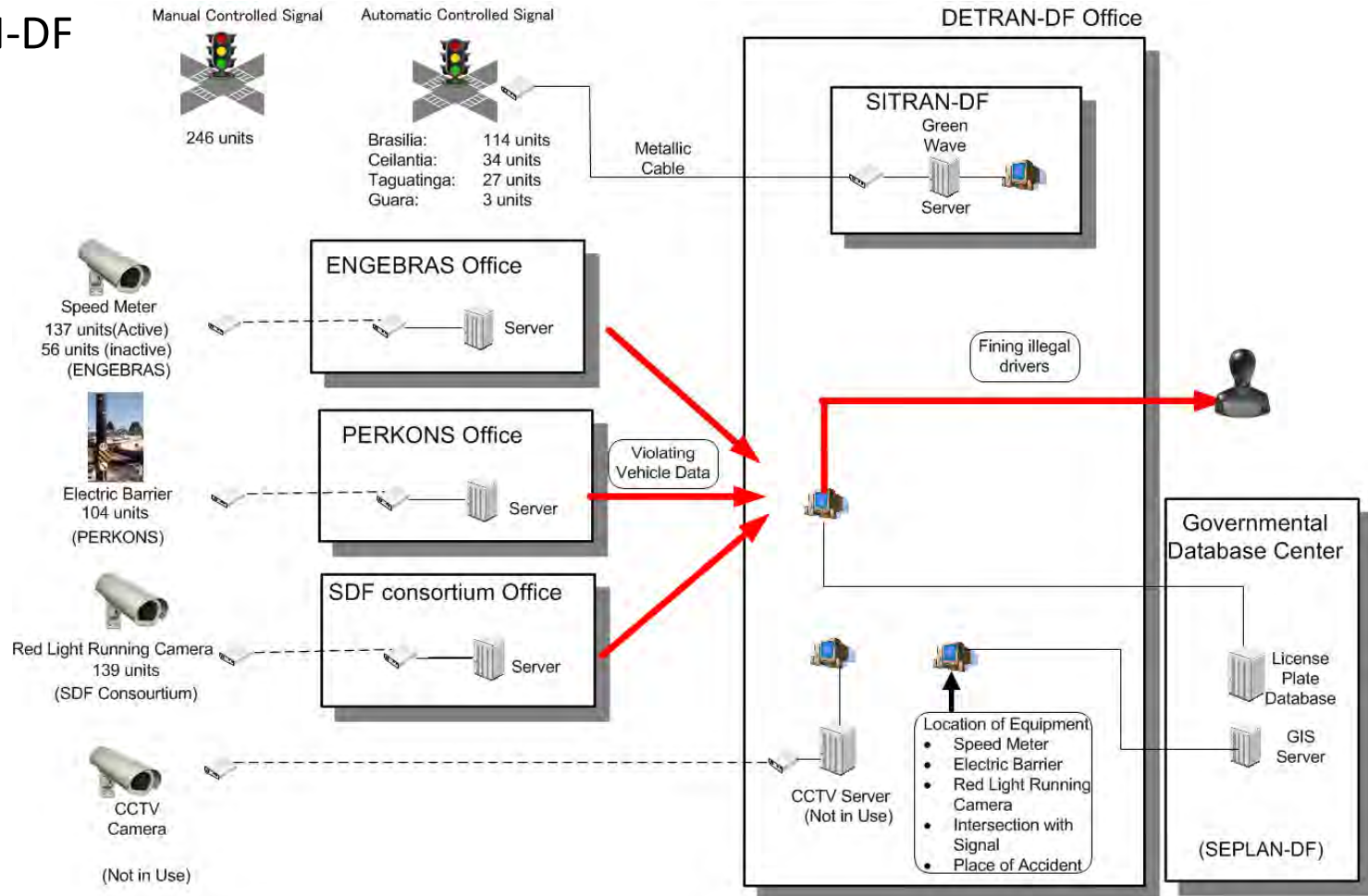
DER-DF



V. Current Condition of ITS

1) ITS Related Agencies of Federal District

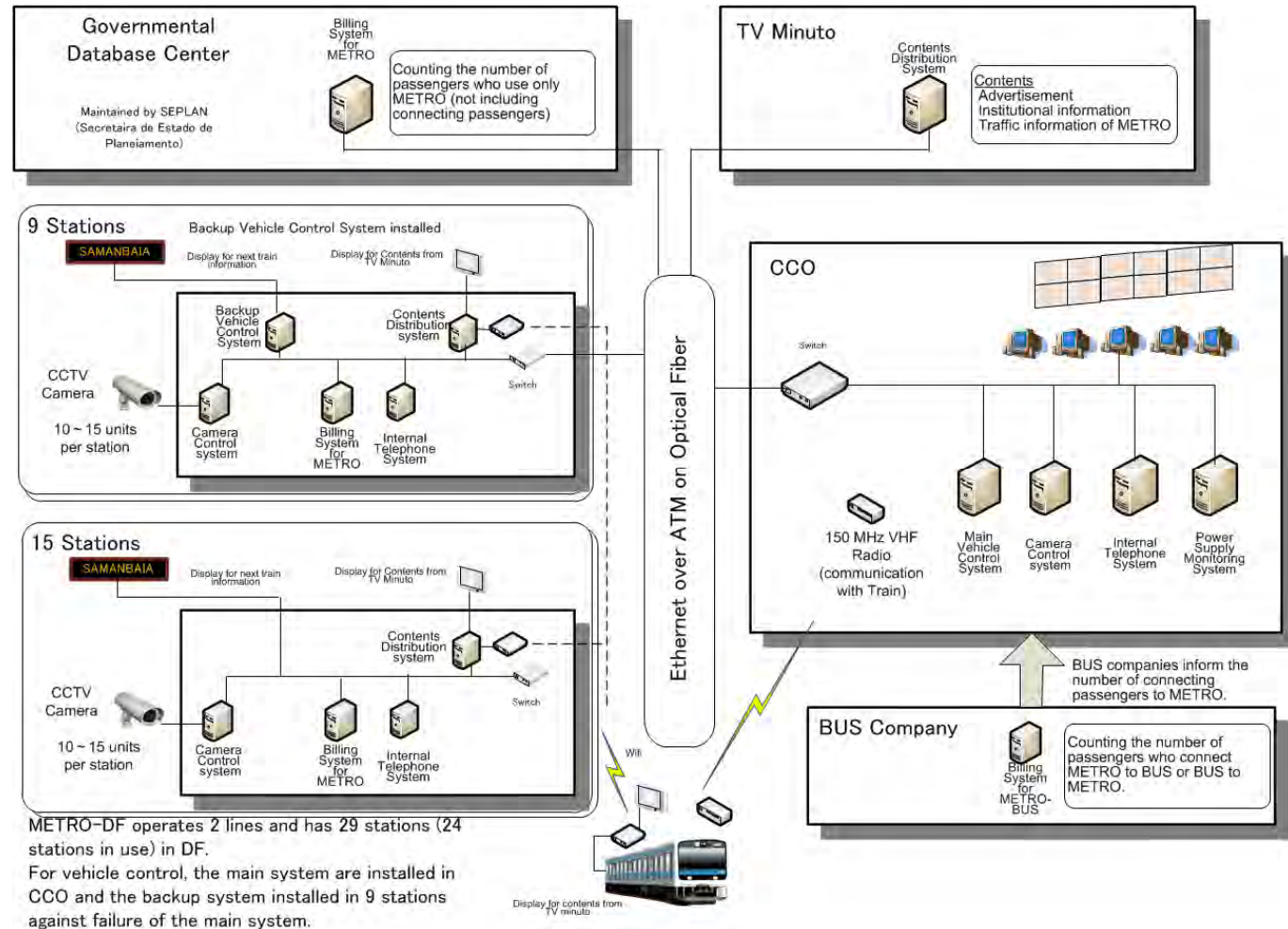
DETRAN-DF



V. Current Condition of ITS

1) ITS Related Agencies of Federal District

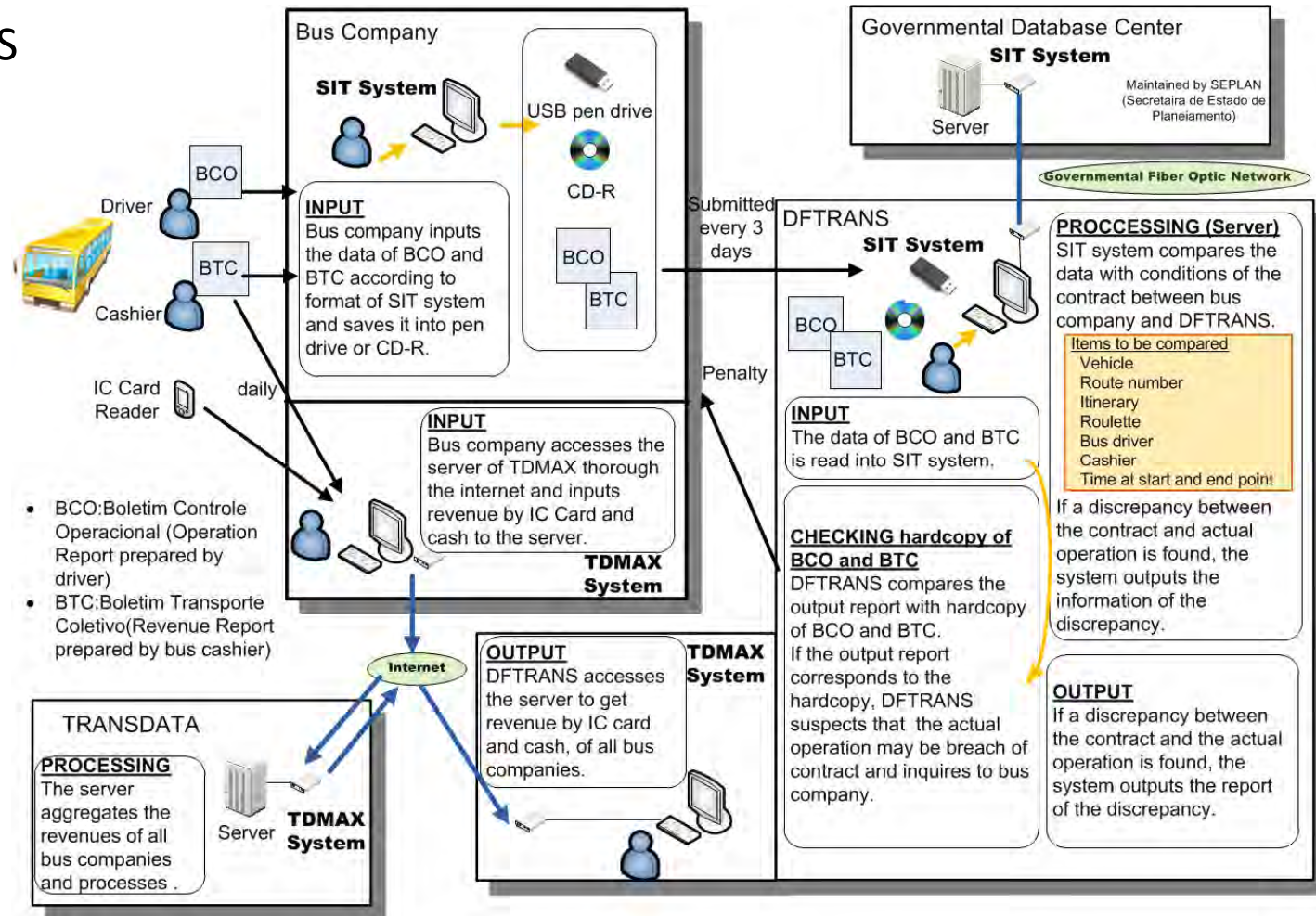
□ METRO-DF



V. Current Condition of ITS

1) ITS Related Agencies of Federal District

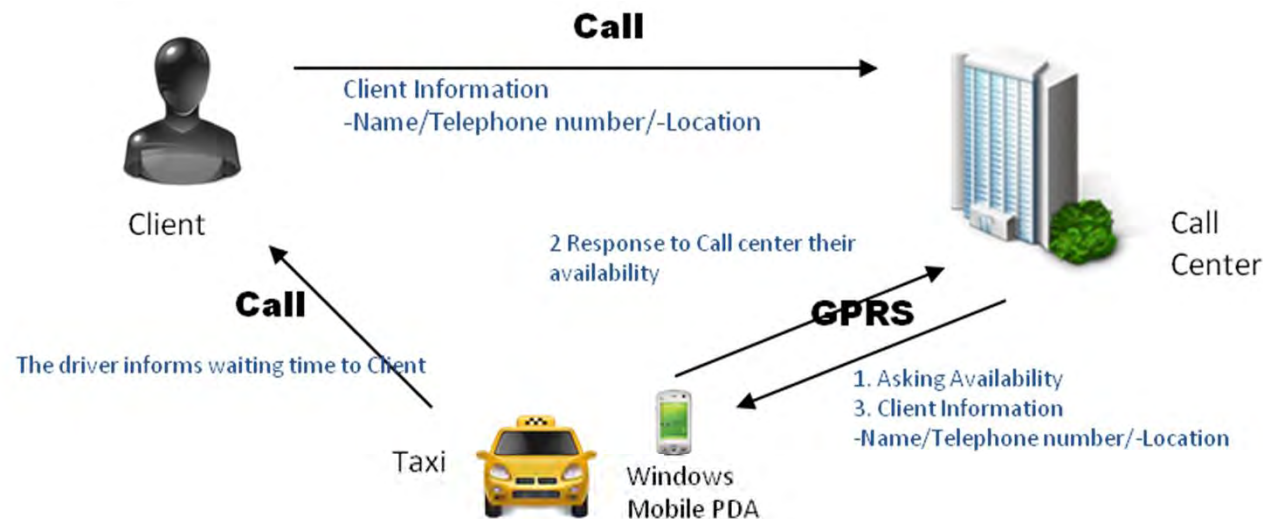
DFTRANS



V. Current Condition of ITS

1) ITS Related Agencies of Federal District

□ Taxi Dispatch Center



AUTOCAB is the system for android smartphone/windows mobile based for automatically taxi dispatching system. Basic flow of the system is below;

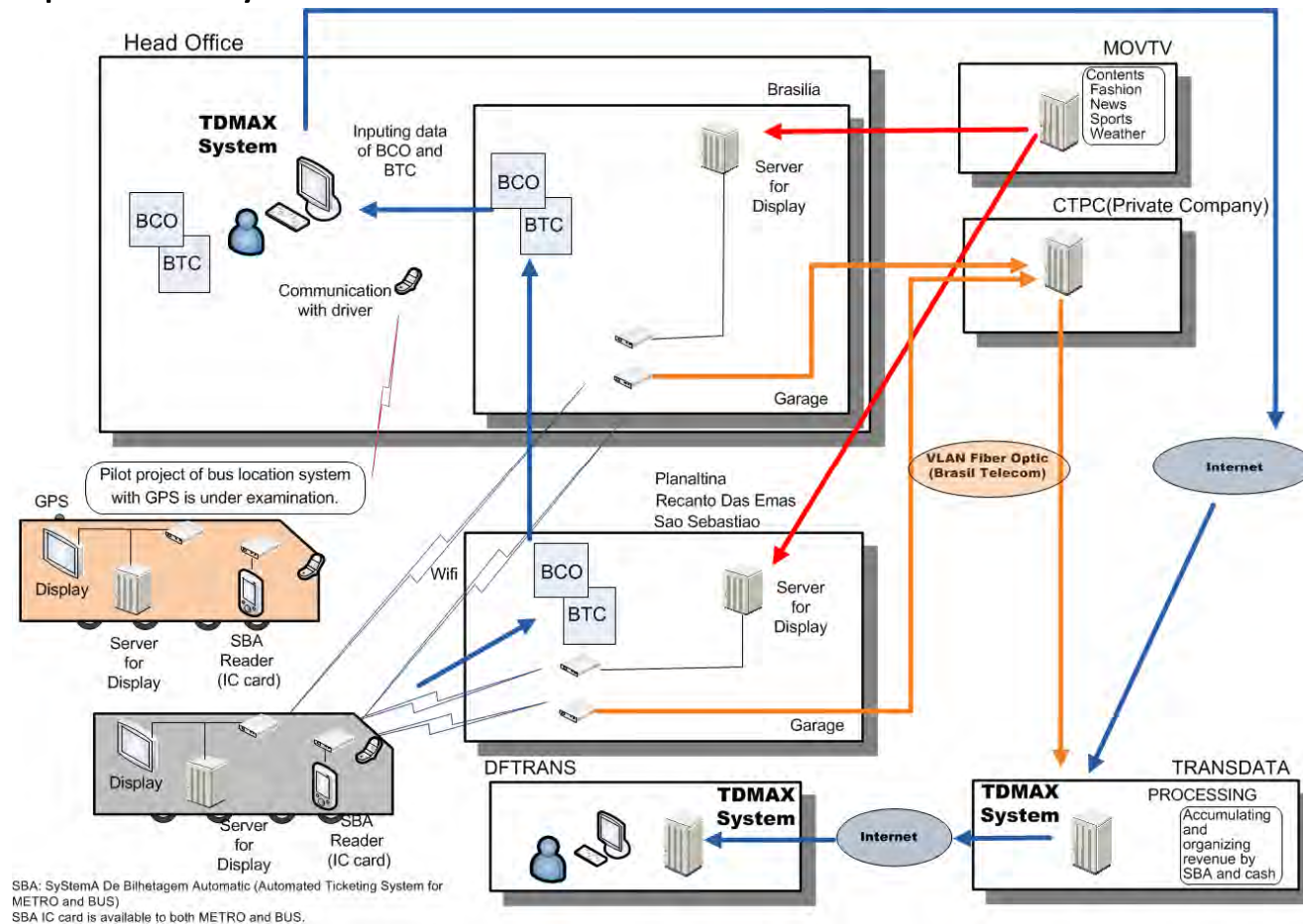
1. Client call to taxi with their location and call center input location information AUTO CAB system
2. Call Center asks availability of the nearest taxi from client via SMS automatically
3. Taxi driver respond to call center their availability, if yes; call center send client information to driver, if no; call center send a request to 2nd nearest taxi from client
4. The taxi driver call the client



V. Current Condition of ITS

1) ITS Related Agencies of Federal District

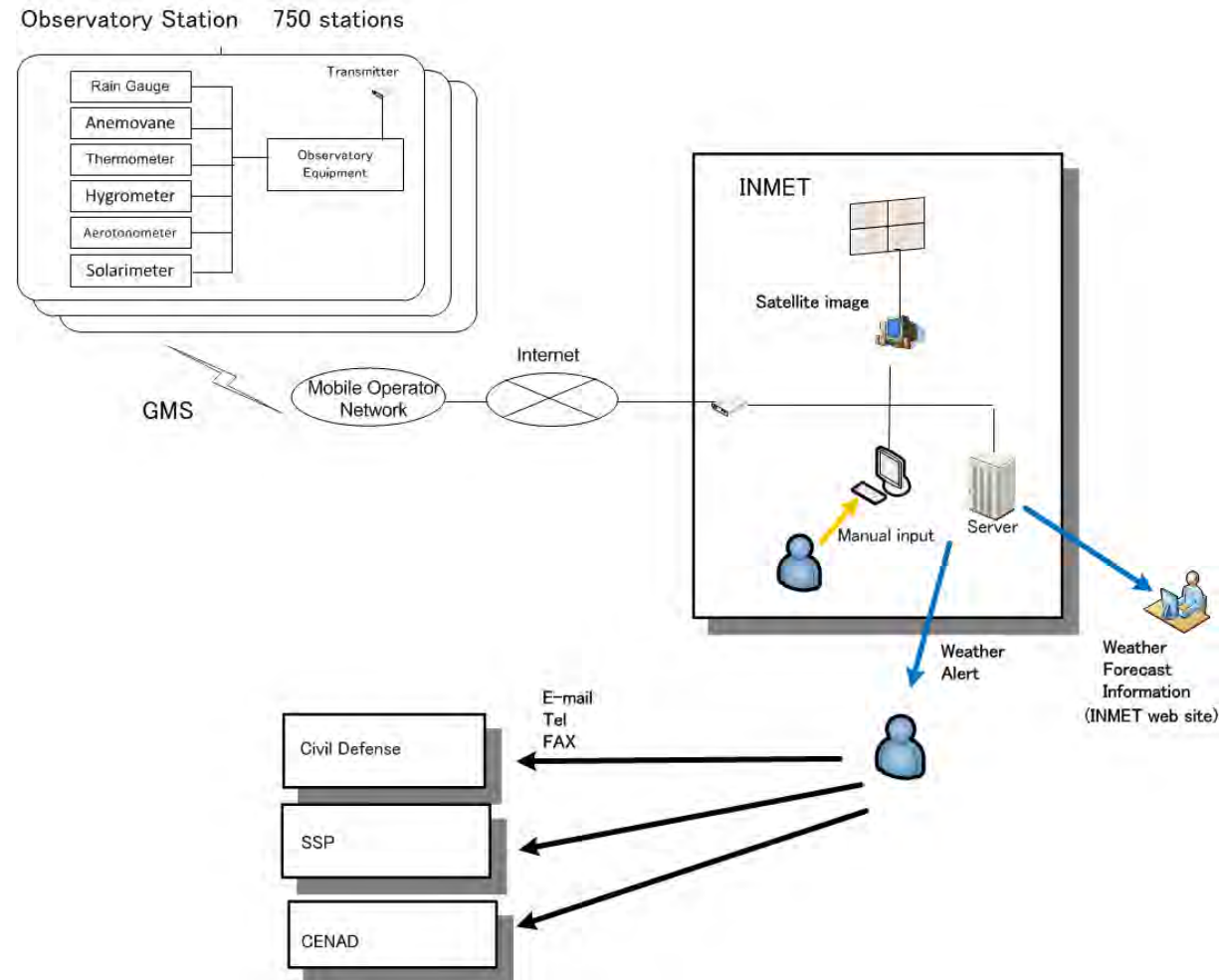
□ Bus Operator System



V. Current Condition of ITS

1) ITS Related Agencies of Federal District

□ INMET



VI. ITS Needs

- User Information

Providing real-time information such as travel time, routes, congestion, transfer options, etc.

- Systems Integration

Management and monitoring of the operation
Exchange of information

- Data Collection and Availability

Extensive collection of quantitative data
Reliability of management

- Implementation / Technology Modernization

Latest technologies
Still in the planning stage



VII. Summary of Issues and Needs of Transportation System

Institutional

Problemas	Necessidades
Fragmented Road Network among Administrators	Agency interaction / Exchange of info in real time
Separated Transportation System among Operators	Agency interaction / Exchange of info in real time
Lack of standards and procedures	Develop unified methodology for data collection and decision making
Lack of Data and Procedures for trip generation analysis	Better data and traffic forecast tools

Regional

Problemas	Necessidades
Population increasing and sprawling	Traffic congestion information and information to destination
Risk of natural disaster	Weather / disaster monitoring
Excess limitation of SPM	Real time air / noise pollution information
Increasing auto fleet	Incentives for public transport use

System

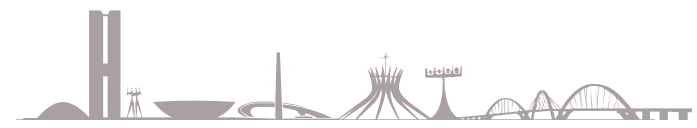
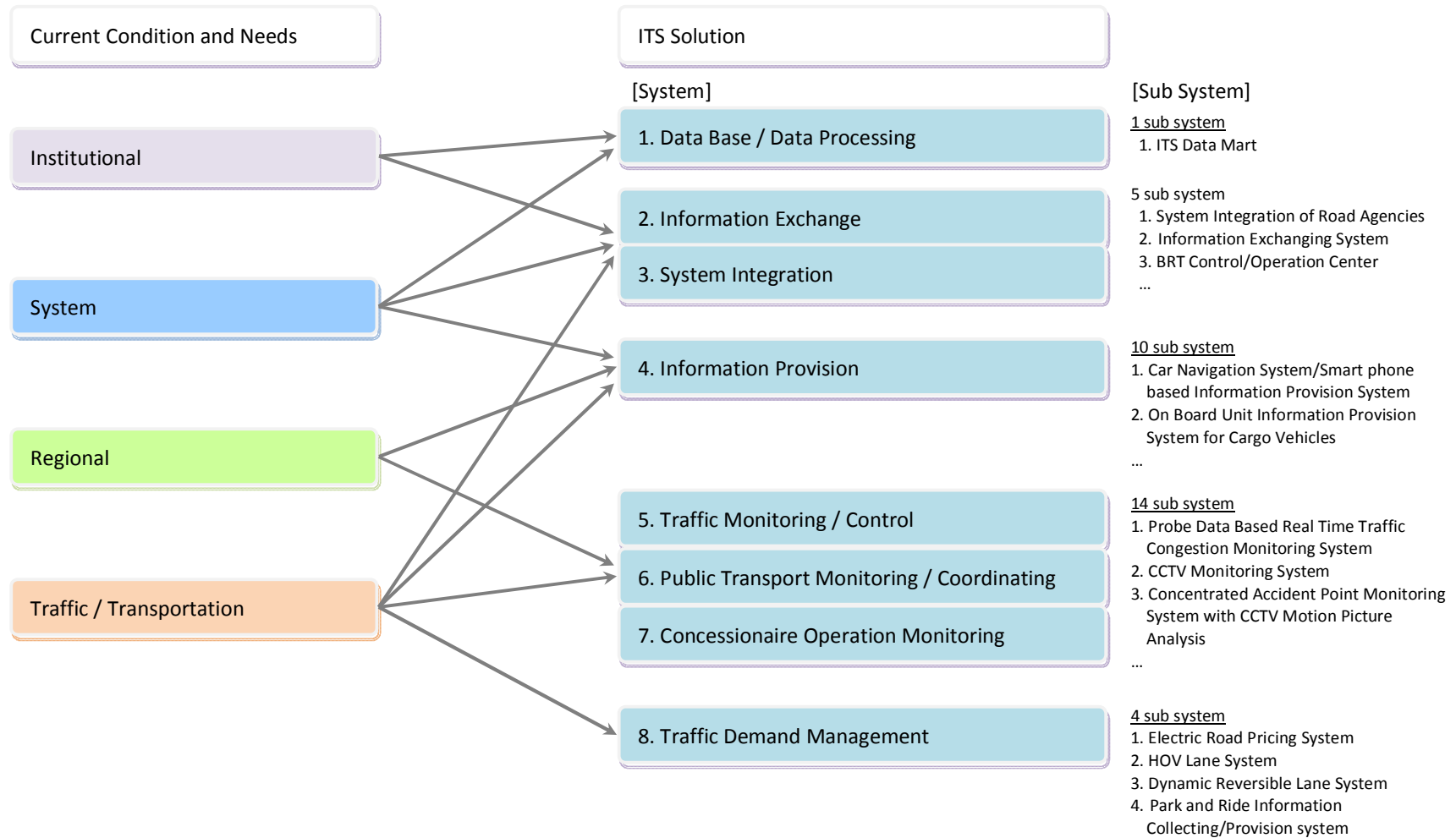
Problemas	Necessidades
No User Information	Promote information dissemination in real time
Shortage of traffic / transportation information provision equipment	Develop information provision equipment
No data exchange /cooperation among agencies	Integration / collaborate interface
Outdated Traffic Management System	Improve/Promote management systems and internal processes upgrade

Traffic / Transportation

Problemas	Necessidades
Heavy traffic volume on arterial roads / Peak period overcapacity	Promote Smooth Traffic / Traffic Congestion information / Traffic demand management
RIDE area transportation needs coming to DF	Promote integration of interstate services and systems
High proportion of mass transit	Secure and safe transportation system / Provide transportation condition information
High rate of fatal accidents	Improve Safety / Traffic monitoring
High parking demand	Parking management / Parking information

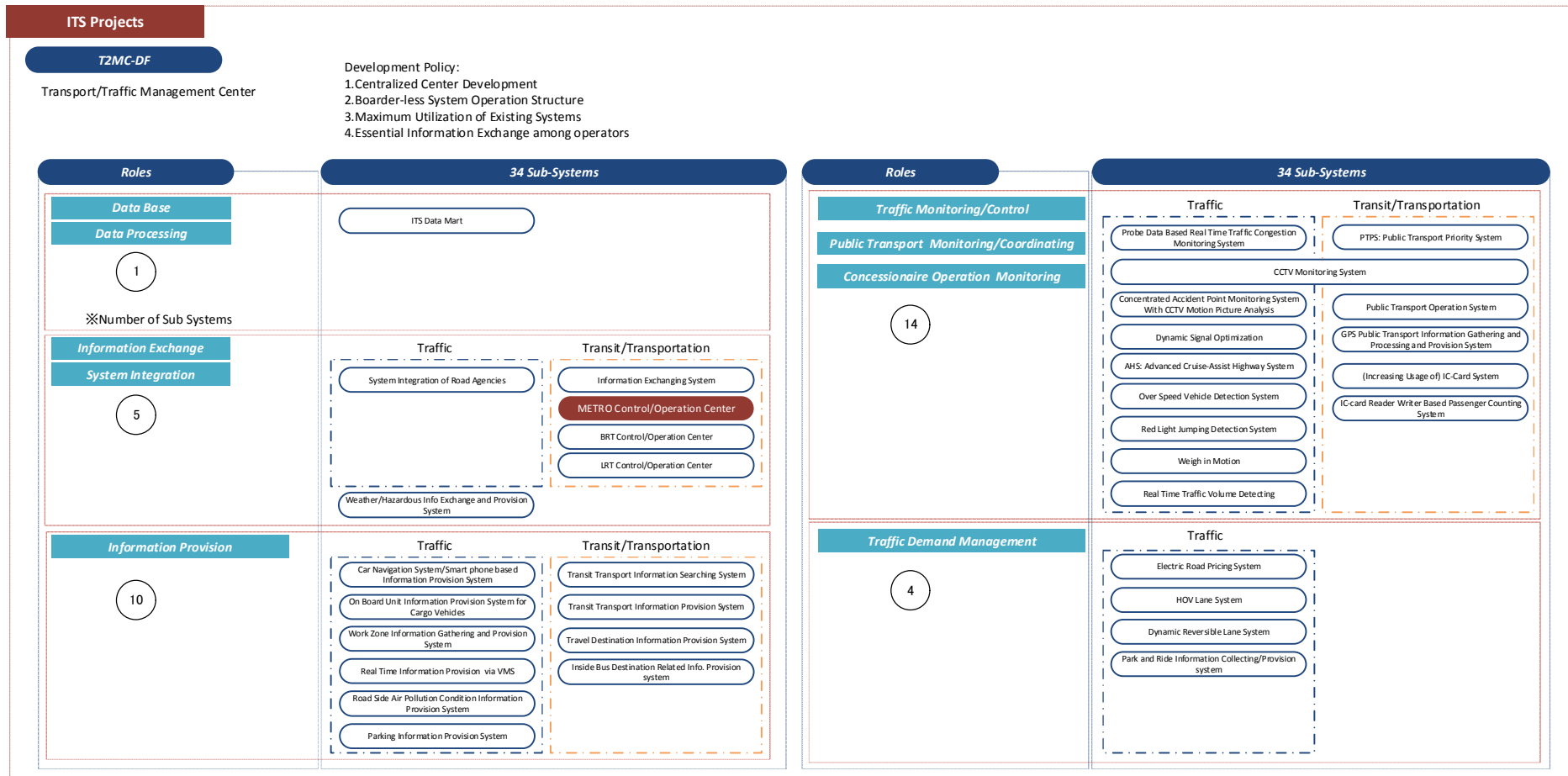


VIII. Proposed ITS Projects



VIII. Proposed ITS Projects

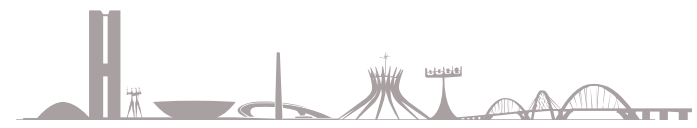
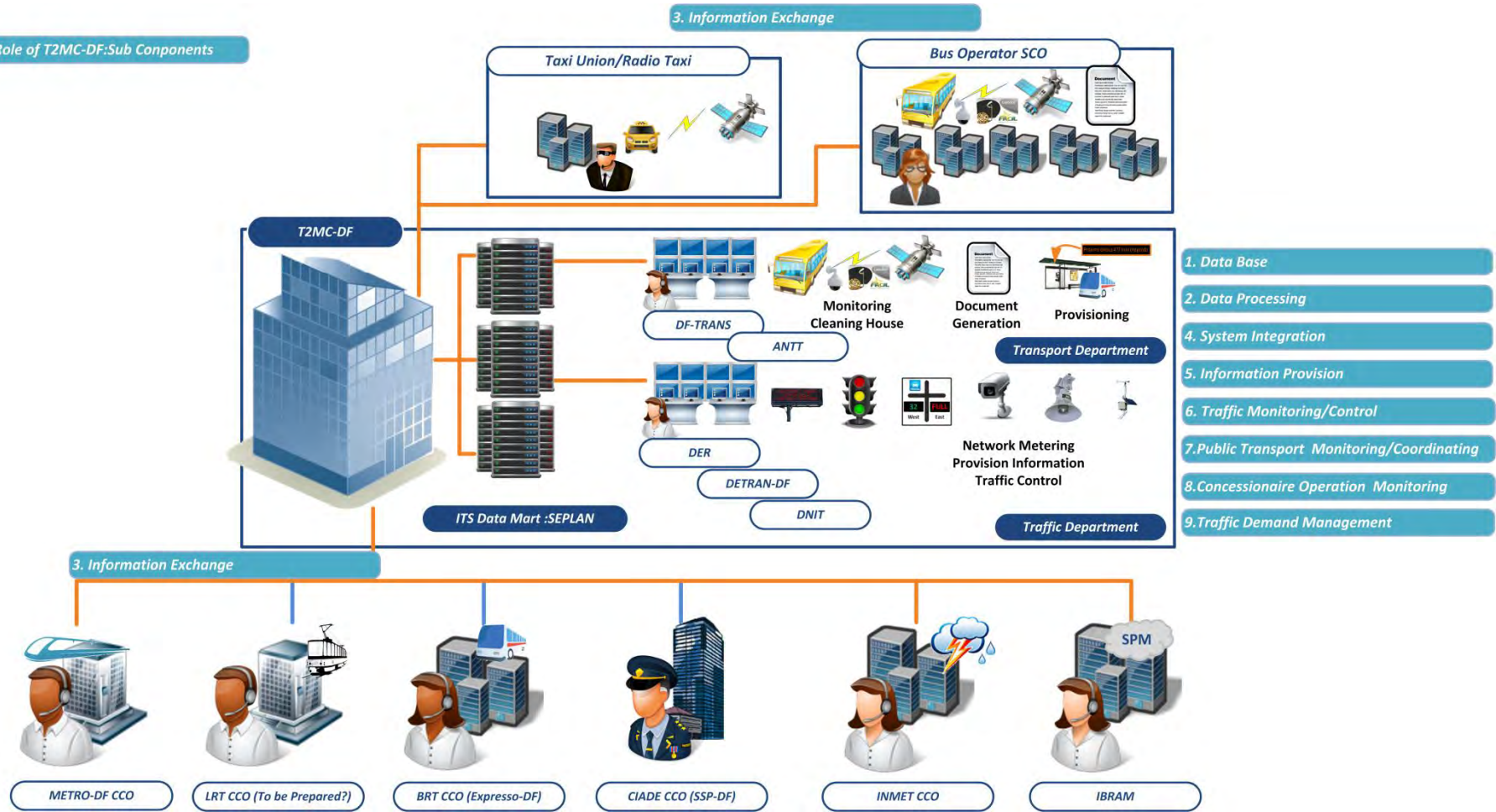
ITS Project



VIII. Proposed ITS Projects

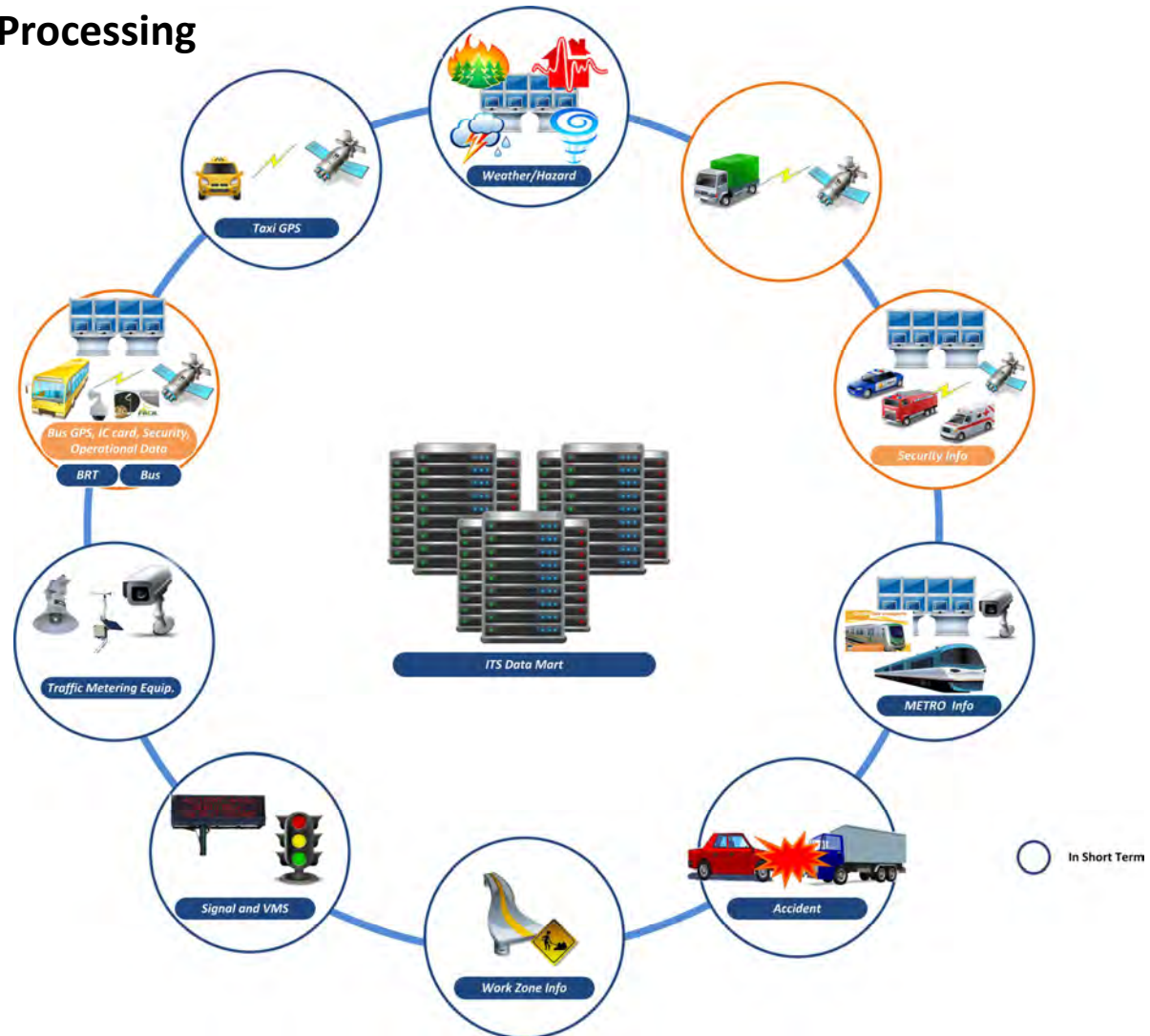
T2MC-DF: Transport/ Traffic Management Center of DF

* Role of T2MC-DF:Sub Components



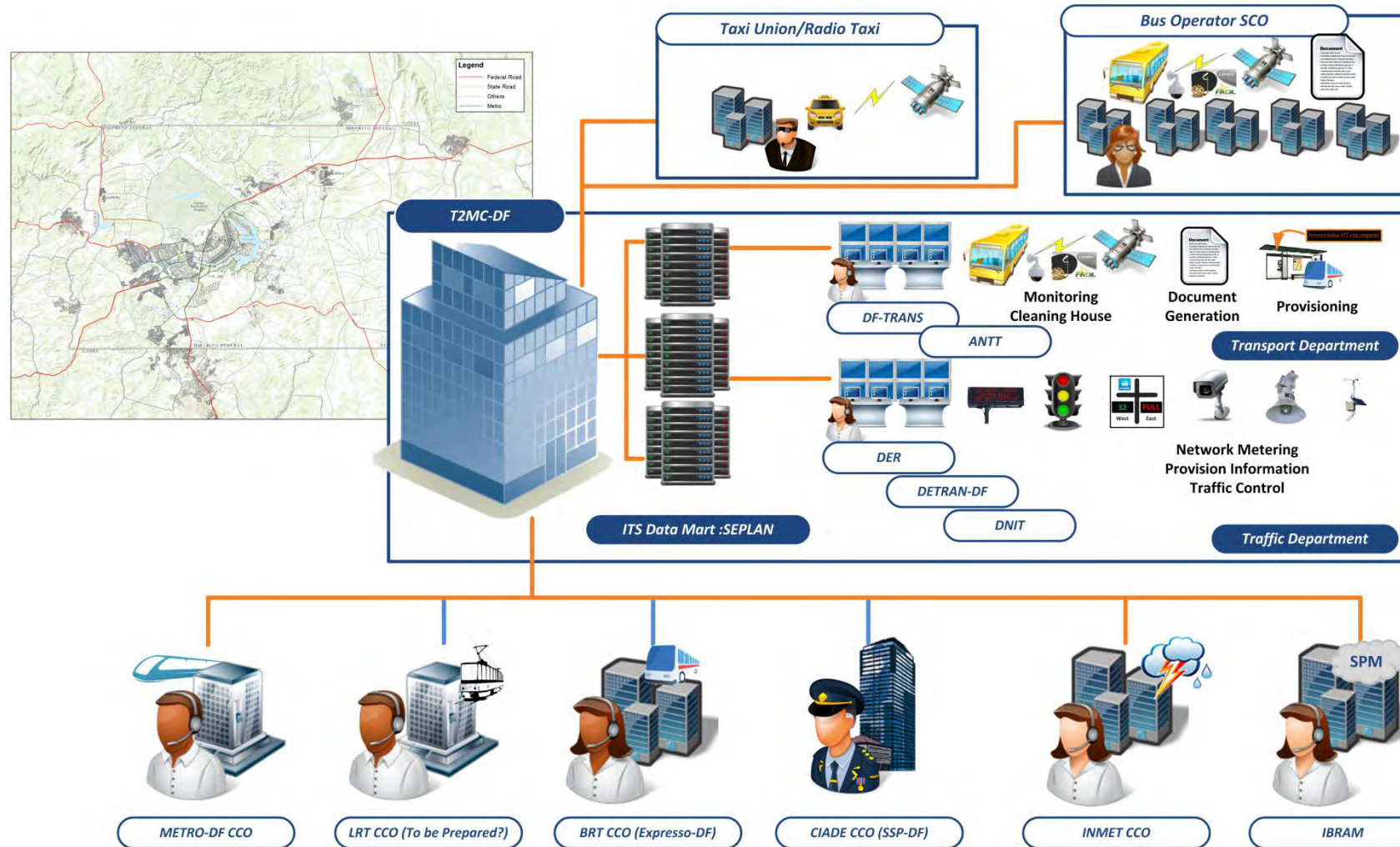
VIII. Proposed ITS Projects

1. Database/Data Processing



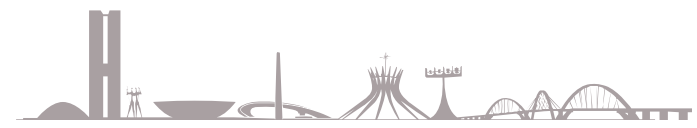
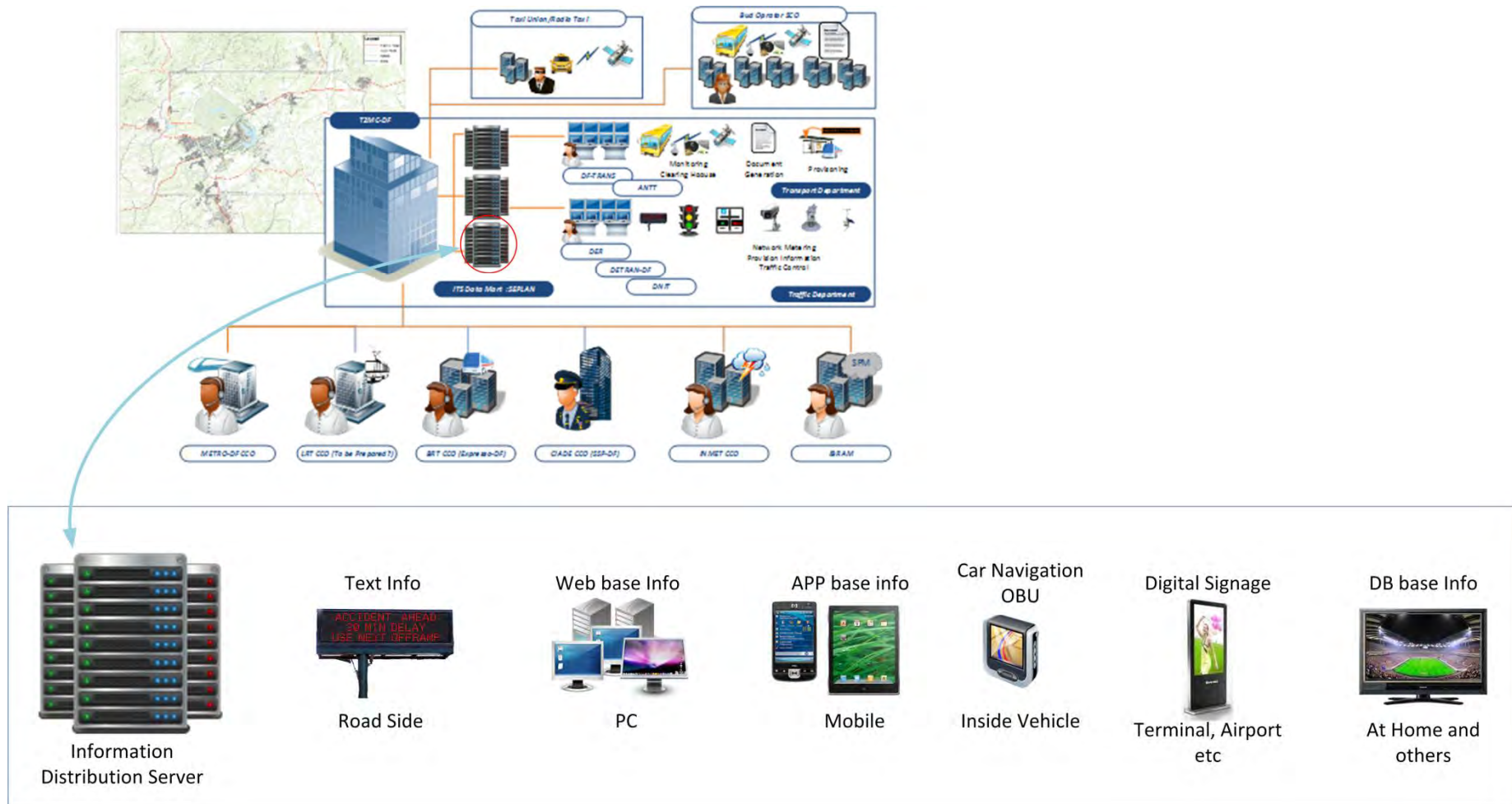
VIII. Proposed ITS Projects

2. Information Exchange and 3. System Integration



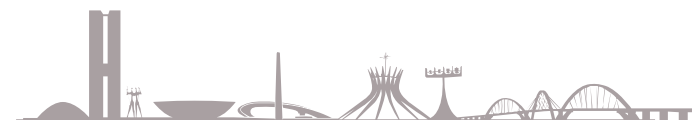
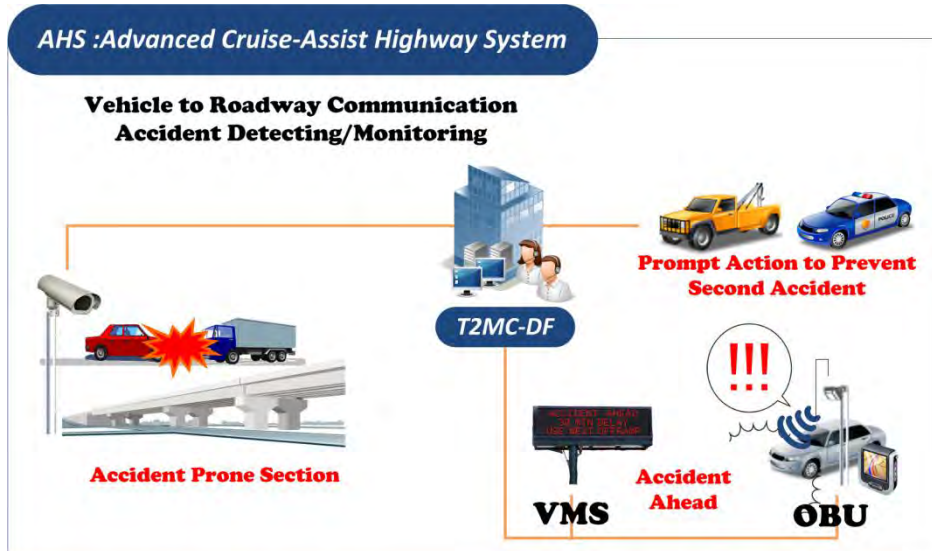
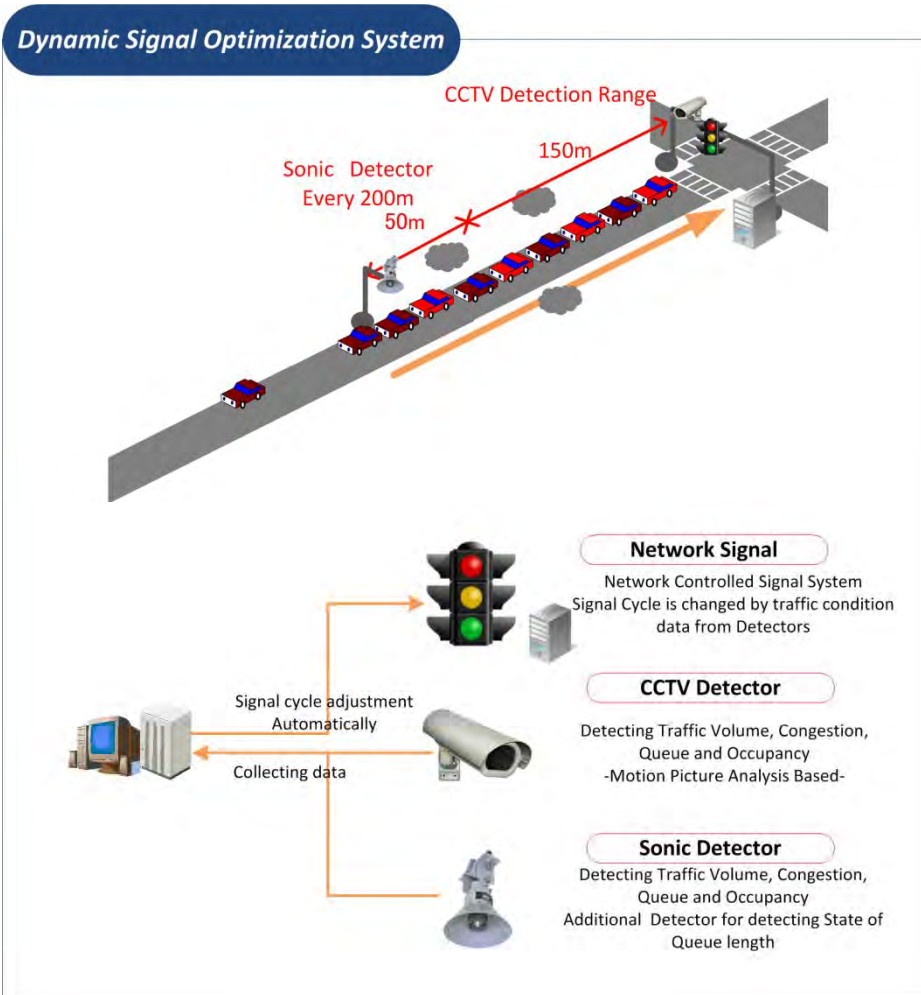
VIII. Proposed ITS Projects

4. Information Provision



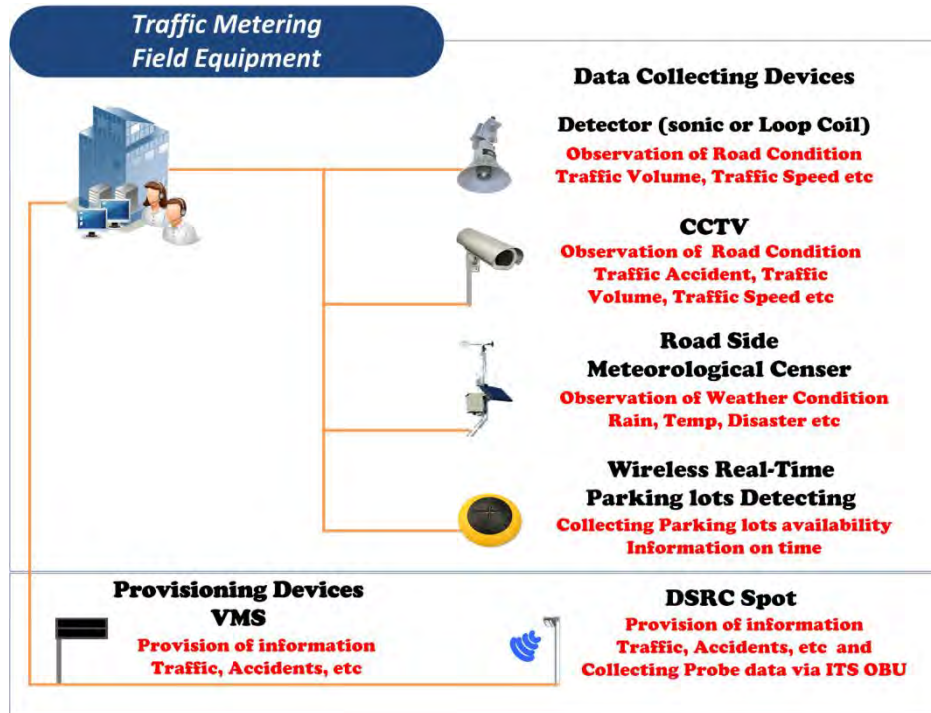
VIII. Proposed ITS Projects

5. Traffic Monitoring/ Control



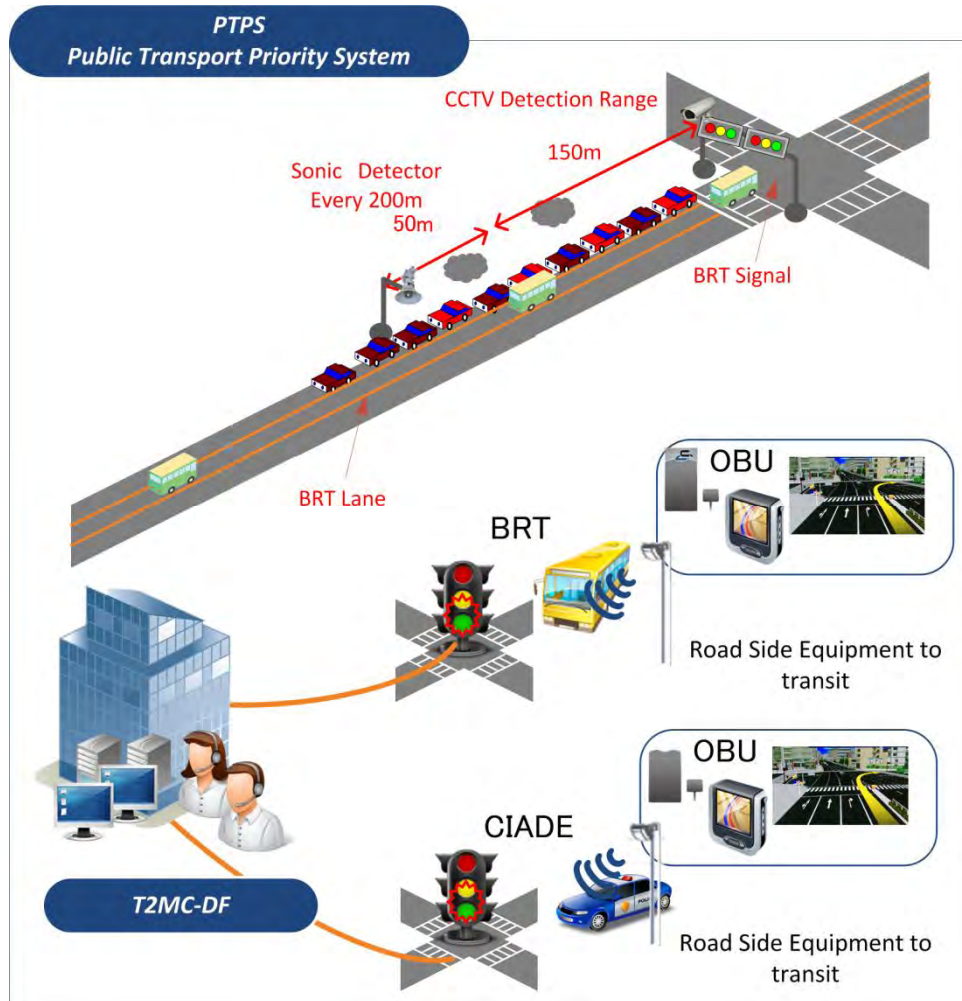
VIII. Proposed ITS Projects

5. Traffic Monitoring/ Control



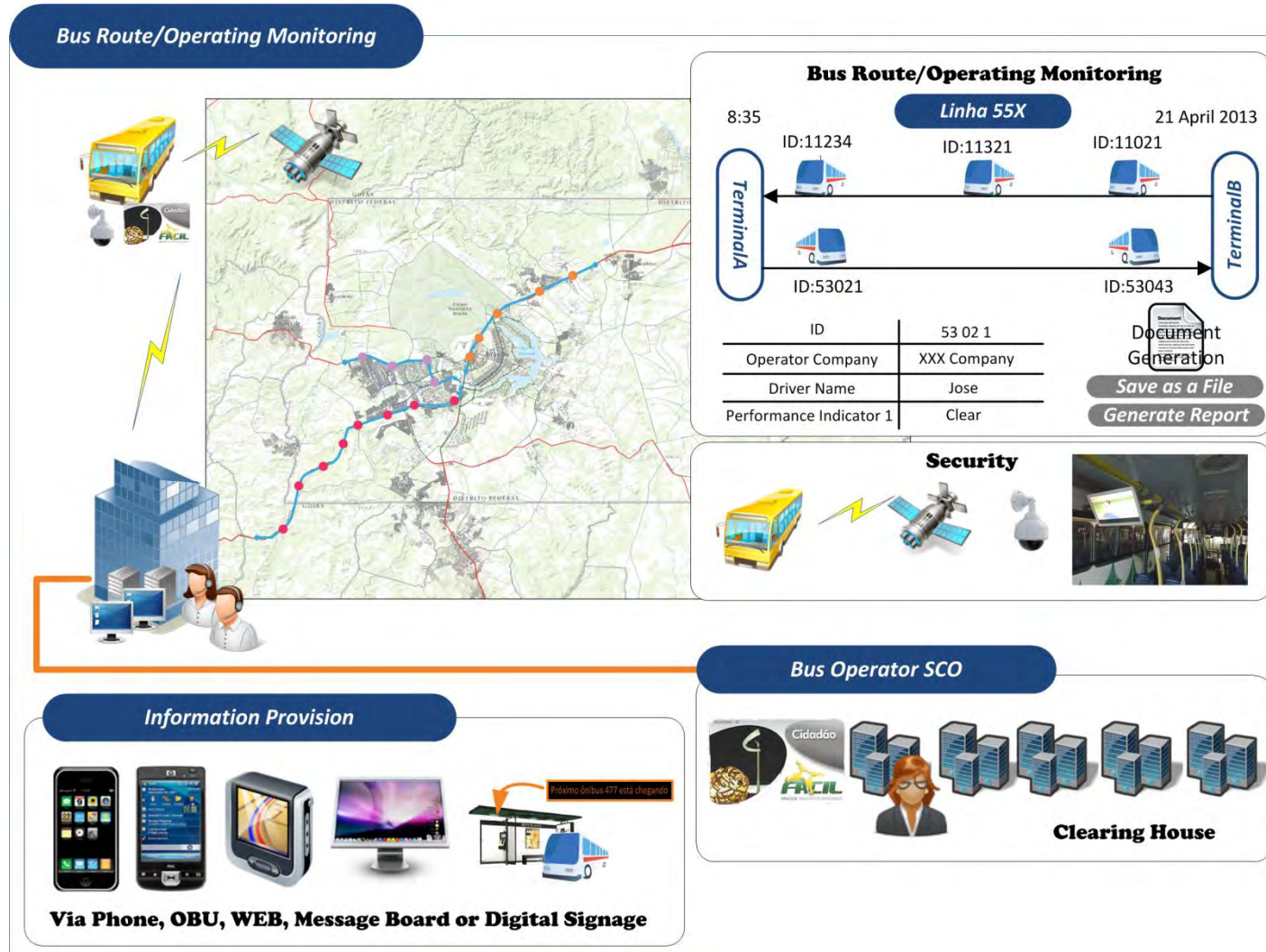
VIII. Proposed ITS Projects

6. Public Transport Monitoring/ Coordinating and 7. Concessionaire Operation Monitoring



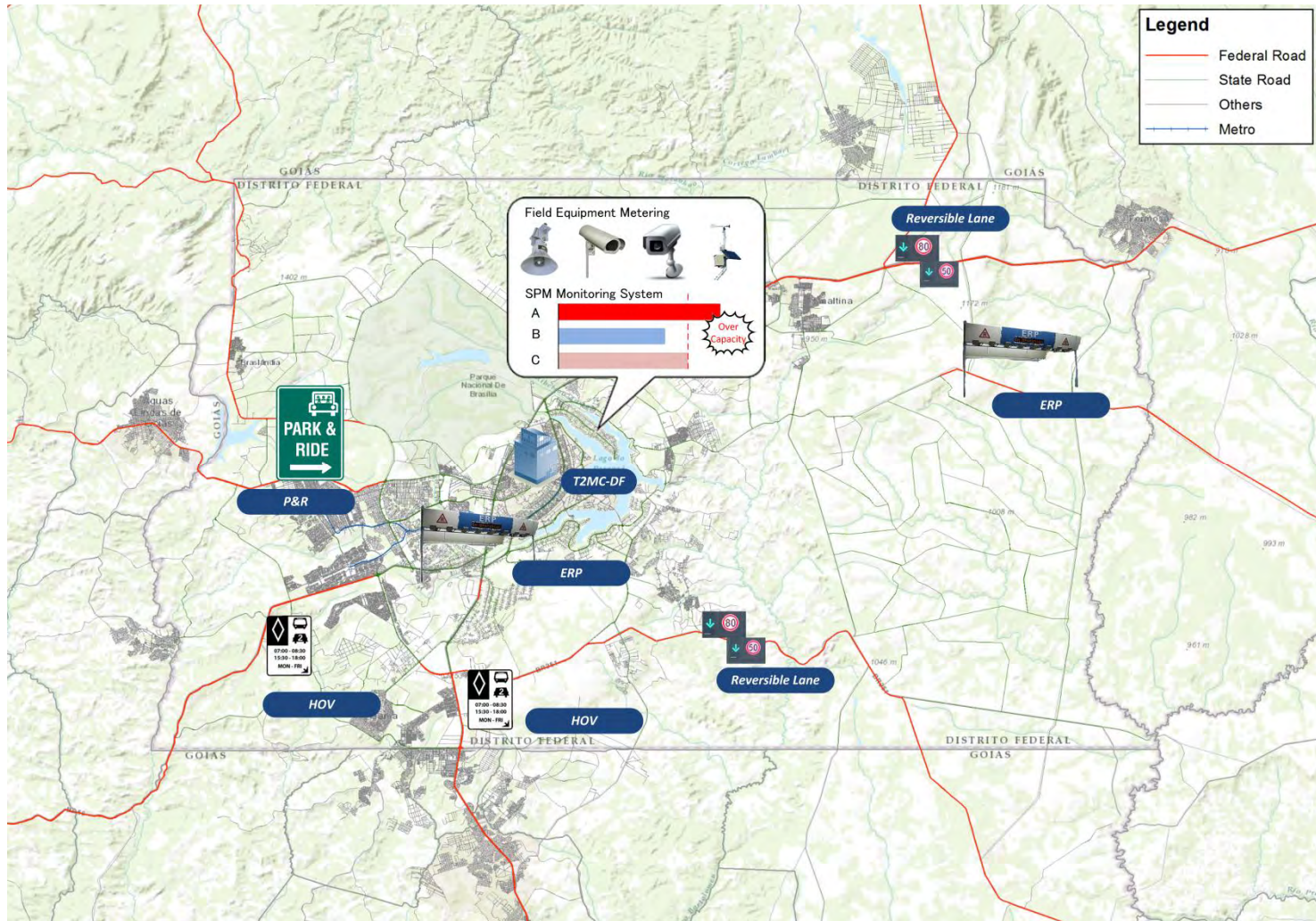
VIII. Proposed ITS Projects

6. Public Transport Monitoring/ Coordinating and 7. Concessionaire Operation Monitoring








VIII. Proposed ITS Projects

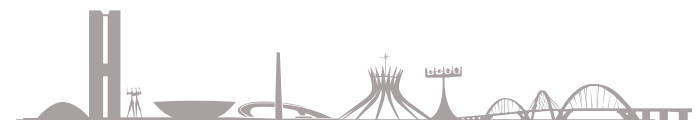
8. Traffic Demand Management



IX. Preliminary Implementation Schedule

ITS Project Name	2013				2014				2015				2016				2017				2018				2019				2020				2021				2022			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
T2MC-DF: Transport/ Traffic Management Center of DF																																								
1: Database/Data Processing ITS Data Mart																																								
ITS Data Mart	Implementation Process												Further Development																											
2: Information Exchange																																								
3: System Integration																																								
System Integration of Road Agencies																																								
Information Exchanging System	Implementation Process												Further Development																											
METRO Control/Operation Center	Implementation Process												Further Development																											
BRT Control/Operation Center	Implementation Process												Further Development																											
LRT Control/Operation Center	Implementation Process												Further Development																											
Weather/Hazardous Info Exchange and Provision System	Implementation Process												Further Development																											
4: Information Provision																																								
Car Navigation System/Smart phone based Information Provision System	Implementation Process												Further Development																											
On Board Unit Information Provision System for Cargo Vehicles	Implementation Process												Further Development																											
Work Zone Information Gathering and Provision System	Implementation Process												Further Development																											
Real Time Information Provision via VMS	Implementation Process												Further Development																											
Road Side Air Pollution Condition Information Provision System	Implementation Process												Further Development																											
Parking Information Provision System	Implementation Process												Further Development																											
Transit Transport Information Searching System	Implementation Process												Further Development																											
Transit Transport Information Provision System	Implementation Process												Further Development																											
Travel Destination Information Provision System	Implementation Process												Further Development																											
Inside Bus Destination Related Information Provision system	Implementation Process												Further Development																											

Short Term: 1~2 years  Implementation Process
 Mid Term: 3~5 years  Implementation Process  Further Development
 Long Term: 6~10 years  Implementation Process  Further Development



IX. Preliminary Implementation Schedule

ITS Project Name	2013			2014			2015			2016			2017			2018			2019			2020			2021			2022			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
T2MC-DF: Transport/ Traffic Management Center of DF																															
5:Traffic Monitoring/ Control																															
Probe Data Based Real Time Traffic Congestion Monitoring System																															
CCTV Monitoring System																															
Concentrated Accident Point Monitoring System With CCTV Motion Picture Analysis																															
Dynamic Signal Optimization																															
AHS: Advanced Cruise-Assist Highway System																															
Over Speed Vehicle Detection System																															
Red Light Jumping Detection System																															
Weigh in Motion																															
Real Time Traffic Volume Detecting																															
6:Public Transport Monitoring/ Coordinating																															
7:Concessionaire Operation Monitoring																															
PTPS: Public Transport Priority System																															
CCTV Monitoring System																															
Public Transport Operation System																															
GPS Public Transport Information Gathering and Processing and Provision System																															
(Increasing Usage of) IC-Card System																															
IC-card Reader Writer Based Passenger Counting System																															
8:Traffic Demand Management																															
Electric Road Pricing System																															
HOV Lane System																															
Dynamic Reversible Lane System																															
Park and Ride Information Collecting/Provision system																															

Short Term: 1~2 years Implementation Process
 Mid Term: 3~5 years Implementation Process Further Development
 Long Term: 6~10 years Implementation Process Further Development



X. Next Steps

- ❑ The DF ITS Preliminary Master Plan should be used as the starting point for development and implementation of the essential ITS systems for DF.

- ❑ Recommended next steps:
 - Basic design of proposed projects
 - Additional Data Collection: traffic volume, travel time and speed during peak periods
 - Detailed analysis of traffic demand and network (simulation)
 - Economic feasibility analysis
 - Detail of communication and ITS architecture
 - Update of existing conditions if needed





Basic Design for Short Term ITS Projects of Rio de Janeiro Metropolitan Area

9th of April, 2013 Seminar 02 at Distrito Federal

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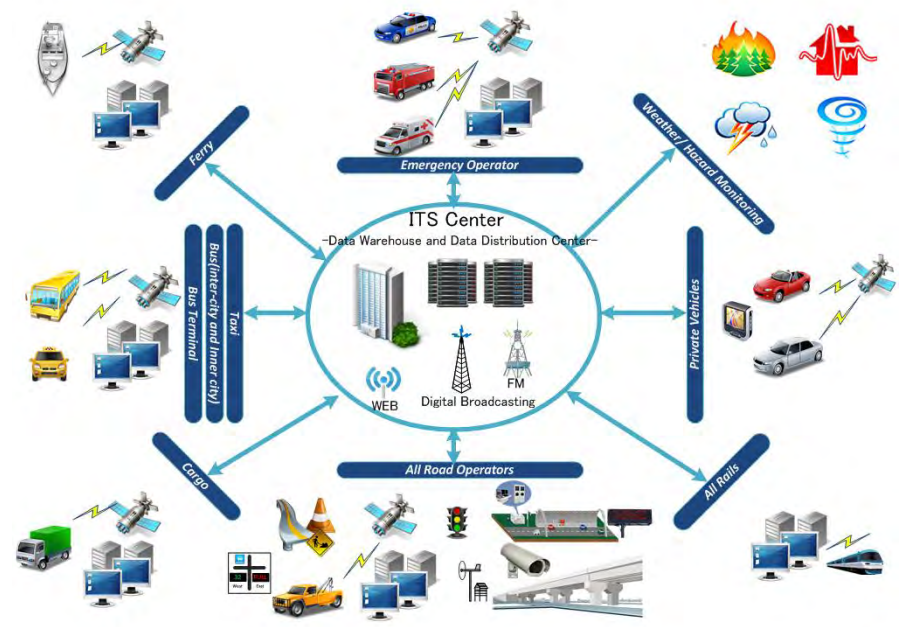
- I. Selected ITS Projects as Short Term
- II. Project Packages
- III. Sample Contents and Detailed Data Flow
- IV. Implementation Schedule

I. Selected ITS Projects as Short Term

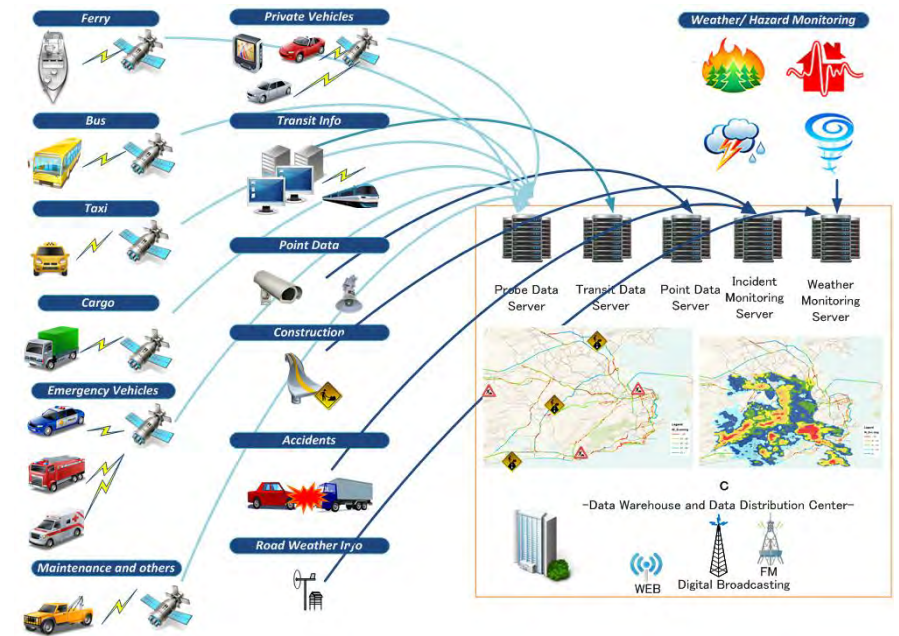
- 1) ITS Center
- 2) Real Time Traffic/Transport Condition Information Processing
- 3) Olympic Security and Transport Coordination Center
- 4) Bus Condition Information Provision
- 5) Information Exchange of Road Operator
- 6) Improvement of Traffic/Transit Operational Center with Essential ITS Equipment at Rio de Janeiro Municipality Area

I. Selected ITS Projects as Short Term

1) ITS Center

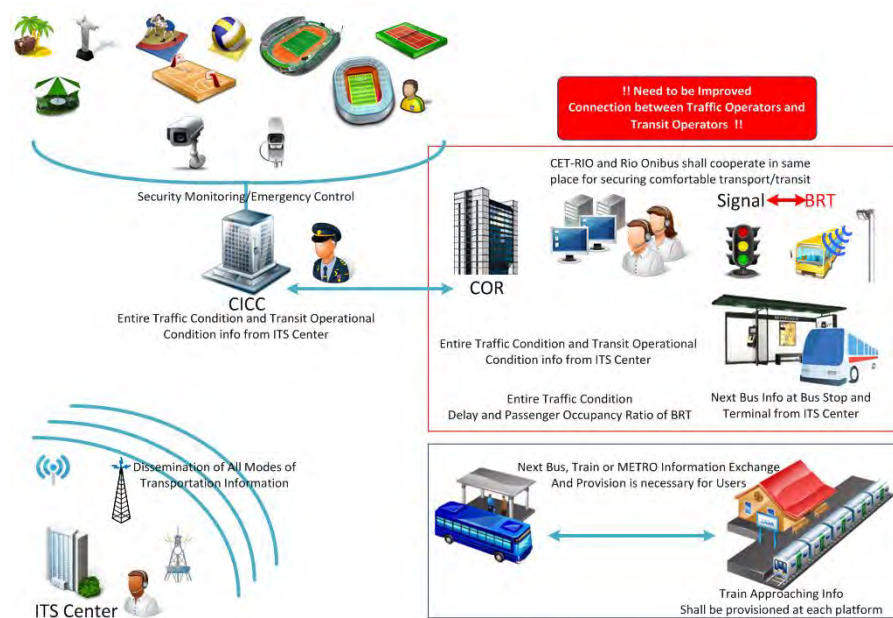


2) Real Time Traffic/Transport Condition Information Processing

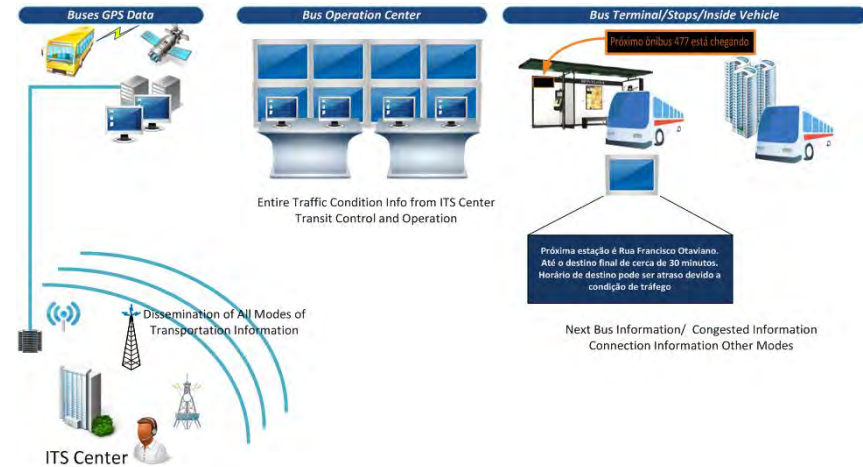


I. Selected ITS Projects as Short Term

3) Olympic Security and Transport Coordination Center

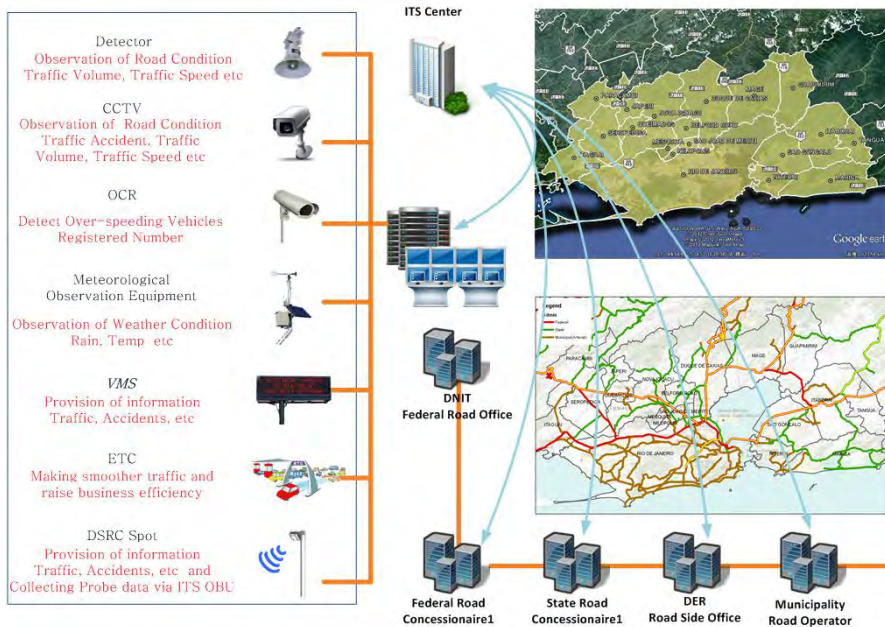


4) Bus Condition Information Provision



I. Selected ITS Projects as Short Term

5) Information Exchange of Road Operator



6) Improvement of Traffic/Transit Operational Center with Essential ITS Equipment at Rio de Janeiro Municipality Area

Now → **Proposed Plan**

TOC for smoother Traffic/Transit Operation
Exchange info nearest important road operators, integration BRT operators.

Not Sufficient → Exchange and Integration

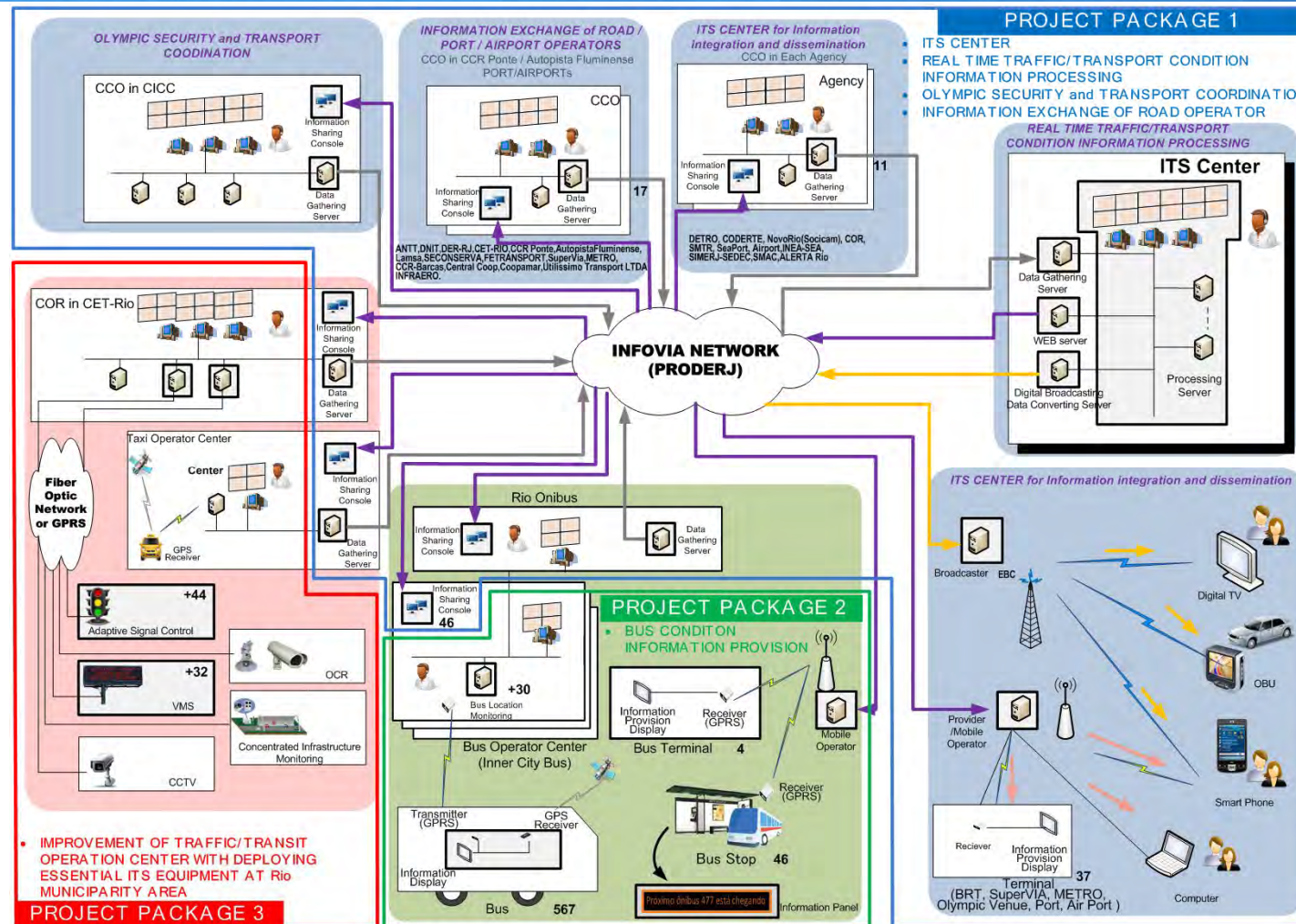
Further Deployment

<p>Adaptive Signal Control For More Smoother Traffic</p> <p>ITAKA is already installed 30 locations, more expansion is needed for more smoother traffic</p> <p>30/2265 1400/2265</p>	<p>Concentrated Infrastructure Monitoring</p> <p>Accuracy improvement for detecting incidents</p> <p>Existing Improved</p>
<p>VMS for More Information Provision</p> <p>Gathered information from several systems shall disseminate via VMSs</p> <p>34 100</p>	<p>MOE for Weather and Air Monitoring</p> <p>Road side weather information shall be gathered operators to provision road side weather information to users</p> <p>None Installed</p>
<p>CCTV for Infrastructure Monitoring</p> <p>CCTVs for ITAKA are installed 120, Other 585 CCTVs installed already. Utilizing CCTVs Motion Picture Analysis Software shall be added</p> <p>585+120 585+350</p>	<p>DYNAMIC LANE MANAGEMENT For More Utilization of Existing Road Network</p> <p>Traffic Detector shall deploy to count traffic volume to determine lane direction dynamically</p> <p>10 location Manual Dynamic Operation</p>
<p>OCR for Enforcement and Monitoring Traffic Condition</p> <p>OCR and other systems are separated. The data shall be utilized as centralized management for traffic metering, real time point speed data monitoring</p> <p>387 487</p>	<p>Bus Related ITS for Bus Location info, Passenger Counting, Travel Time Info.</p> <p>Bus related information disseminate via ITS Center. BRT Operation shall be integrated traffic operation for comfortable journey</p> <p>Not Integrated, Inefficient Information Need to be improved</p>
<p>Work Zone Monitoring for Safer Road Work and Information Provision SECONSERVA</p> <p>All of Work Zone Information shall be gathered in advance and disseminate information users and operators</p> <p>None Prepared</p>	<p>Taxi Dispatching for Response to Taxi Customers, Monitoring Traffic Condition</p> <p>GPS data shall be utilized for monitoring current traffic condition on time</p> <p>Some operators already installed Utilization</p>
<p>Parking Availability Information Provision SECONSERVA and Private Companies</p> <p>Parking Availability Information shall be collect and provision via VMS, Web, Car Navigation</p> <p>None Prepared</p>	<p>Rail Crossing Management for More Safer and Secure Traffic</p> <p>With SUPERVIA Rail Crossing shall be controlled by Rail Operator and also coordinated with Traffic Operator</p> <p>None Prepared</p>

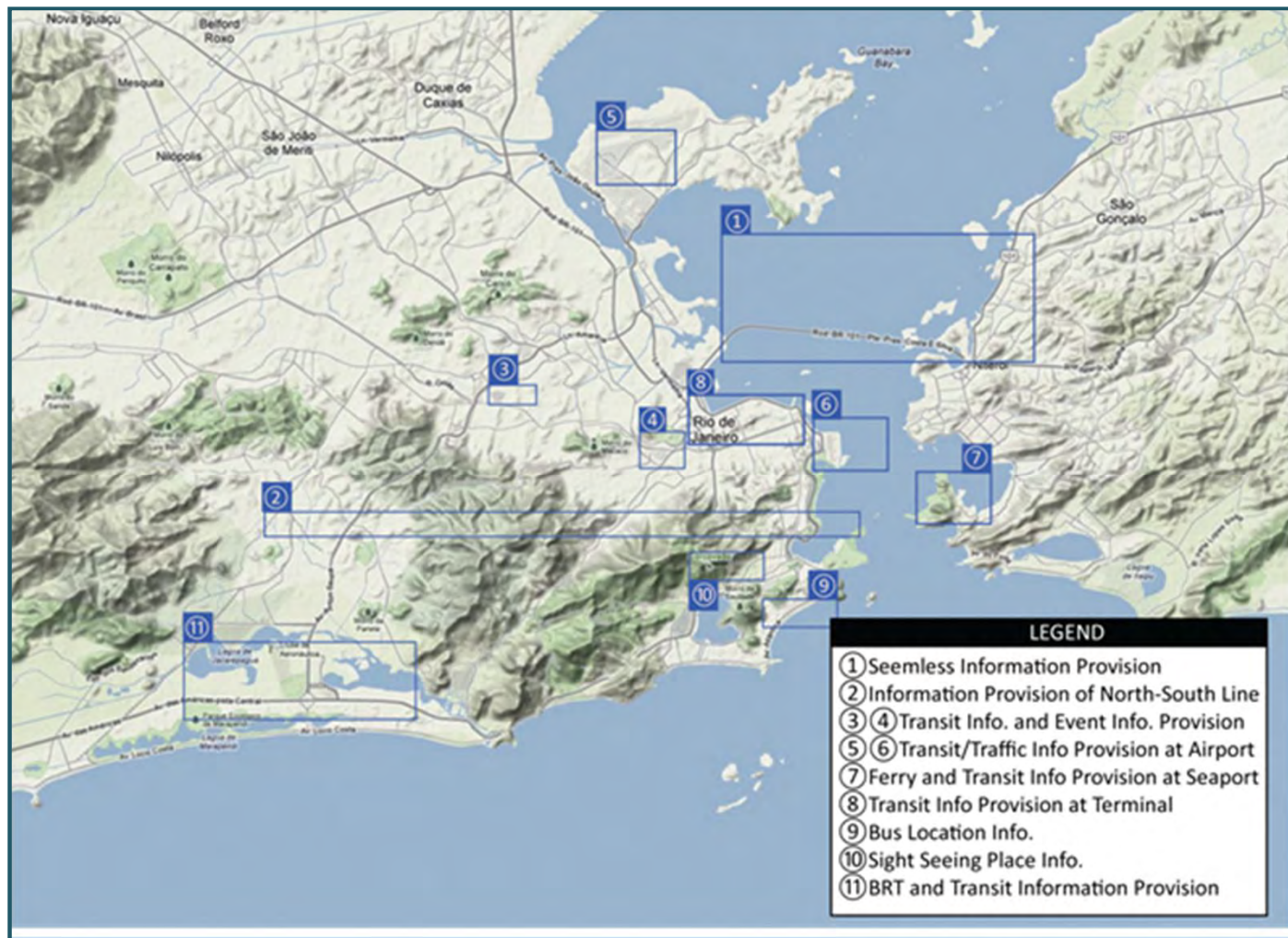
II. Project Packages

Project Packages	Composition
Project Package 1	No.1 ITS Center No.2 Real Time Traffic/Transport Condition Information Processing No.3 Olympic Security and Transport Coordination Center No6. Information Exchange of Road Operator
Project Package 2	No.4 Bus Condition Information Provision
Project Package 3	No.8 Improvement of Traffic/Transit Operational Center with Essential ITS Equipment at RJ Municipality Area

II. Project Packages



III. Project Package 1 Sample Contents



III. Project Package 1 Sample Contents



① Seamless Information Provision
(at several road operators jurisdictional area)