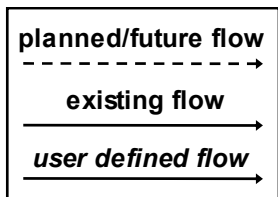
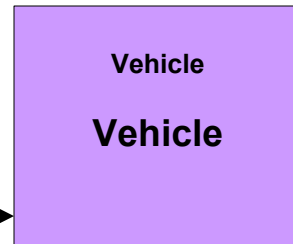
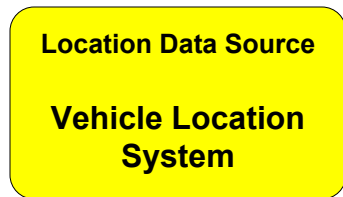
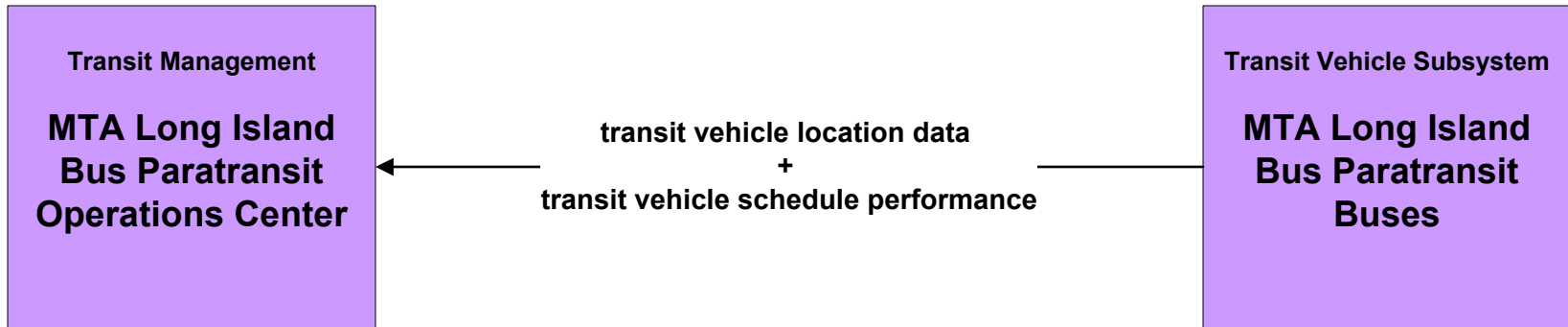
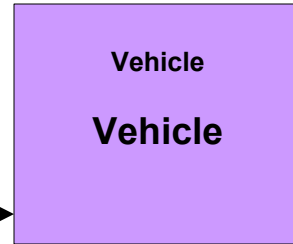
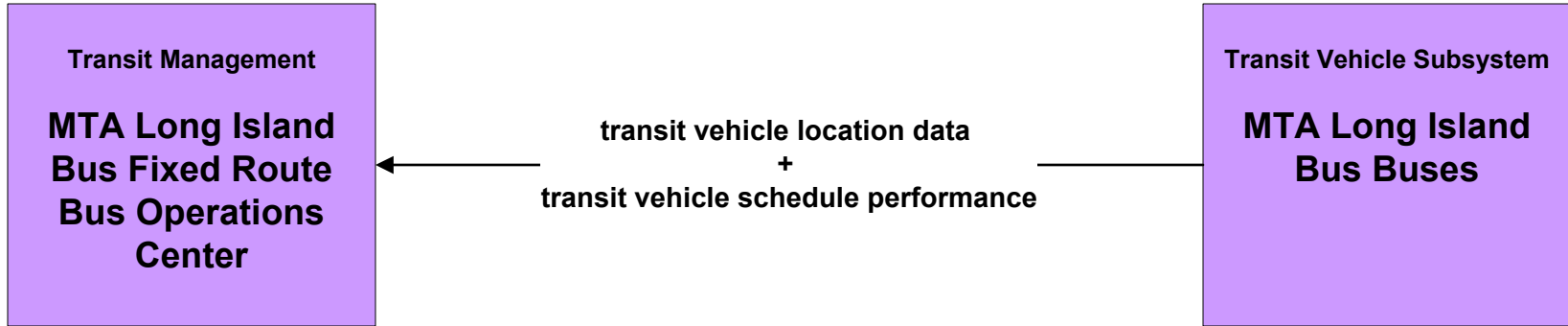


NYMTC ITS Integration Strategy and New York City Sub Regional ITS Architecture

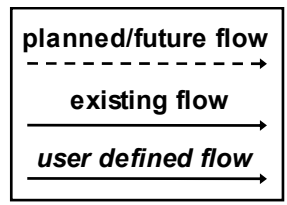
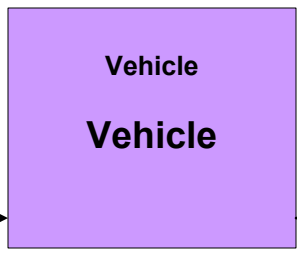
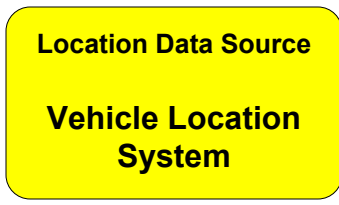
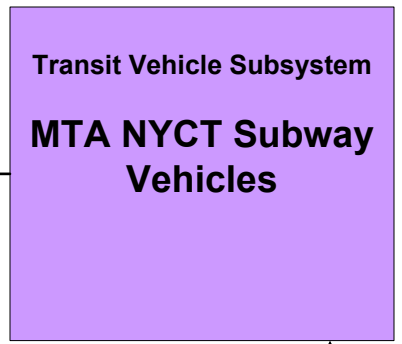
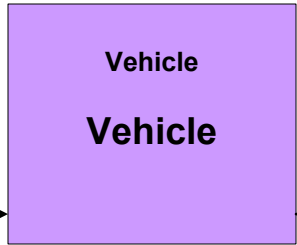
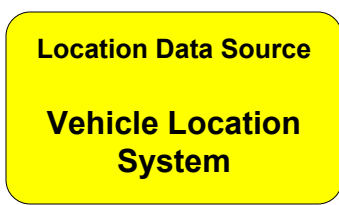
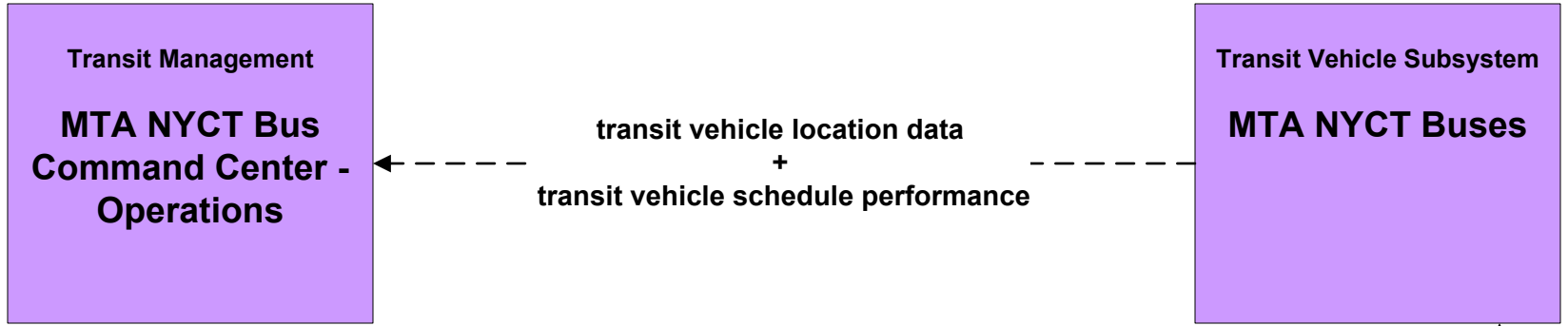
Customized Market Package Diagrams

Advanced Public Transportation Systems (APTS)

APTS1 - Transit Vehicle Tracking MTA Long Island Bus



APTS1 - Transit Vehicle Tracking MTA NYC Transit Bus and Subway



position fix

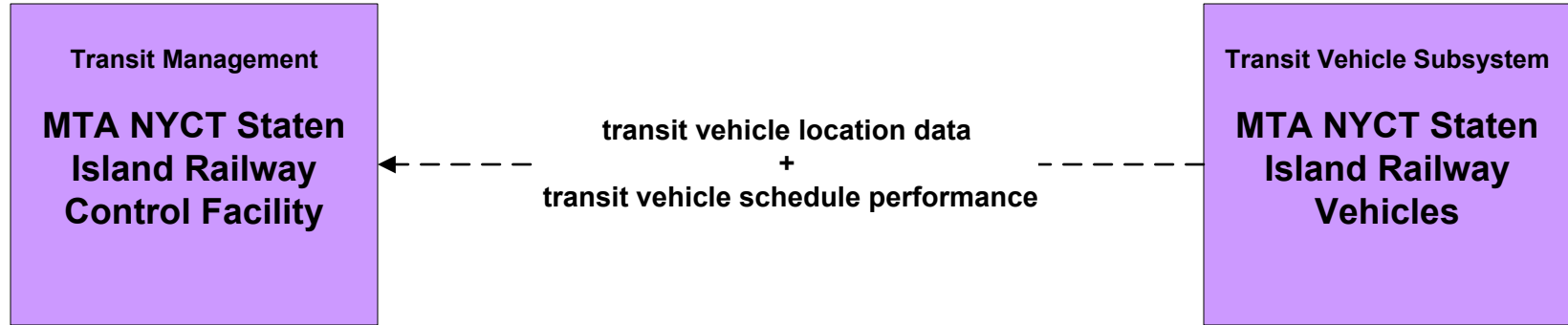
vehicle location

position fix

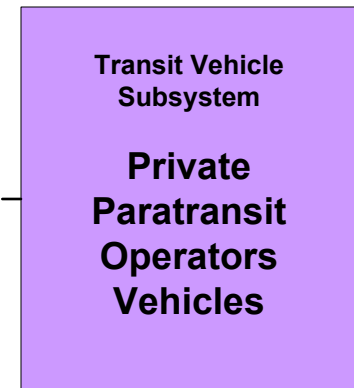
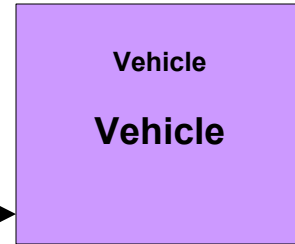
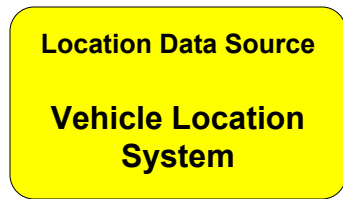
vehicle location

APTS1 - Transit Vehicle Tracking

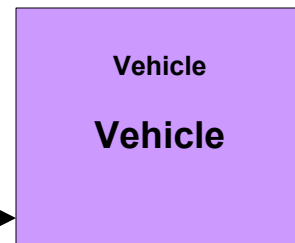
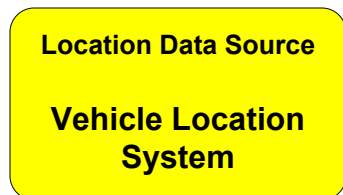
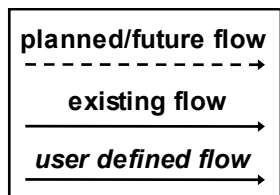
MTA NYCT Staten Island Railway and Paratransit Operators



APTS7 shows schedule coordination with Staten Island Ferries and NYCT Buses.



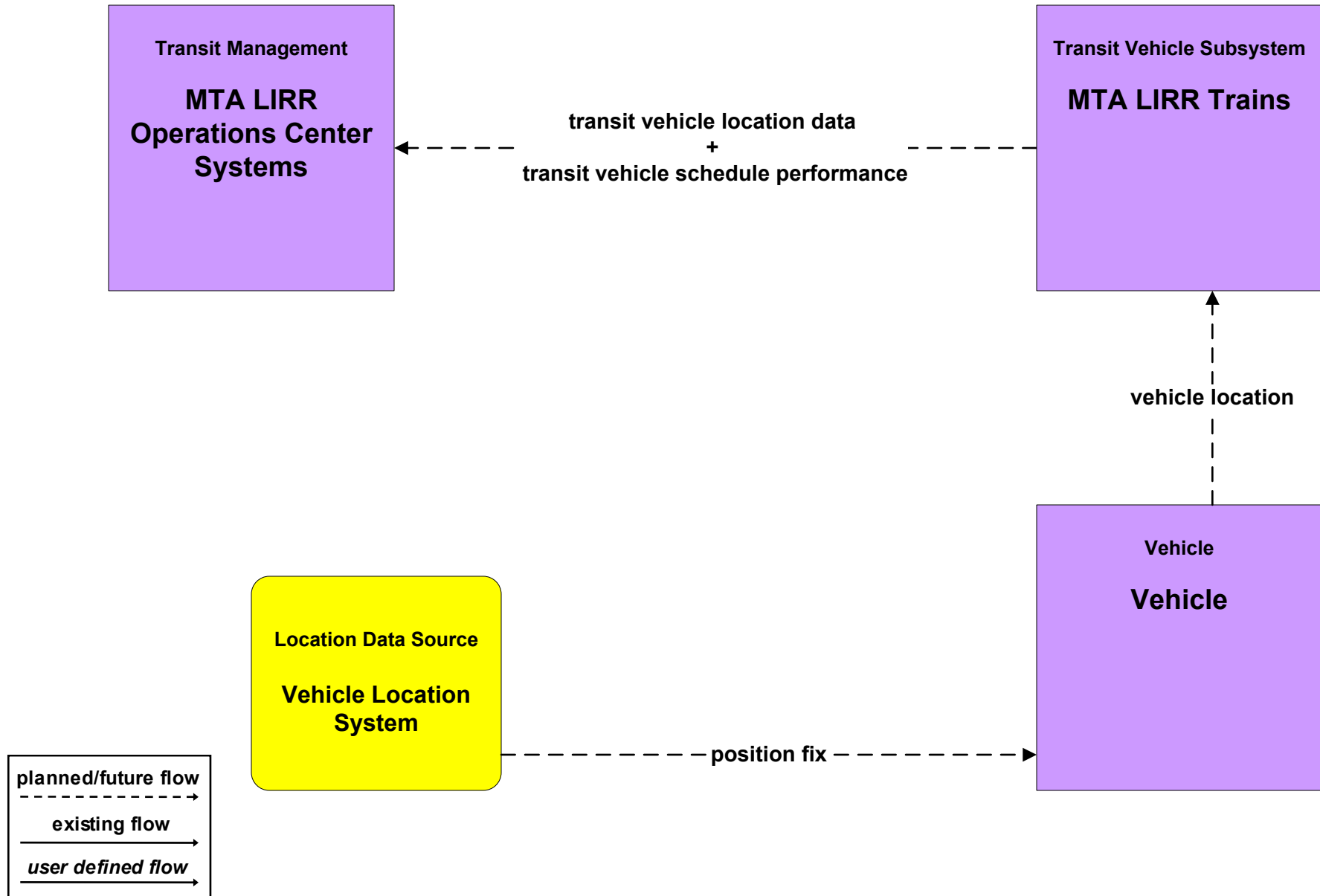
transit vehicle location data
+
transit vehicle schedule performance



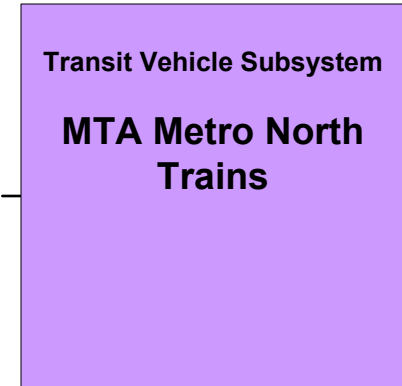
-----position fix----->

-----vehicle location----->

APTS1 - Transit Vehicle Tracking MTA Long Island Rail Road

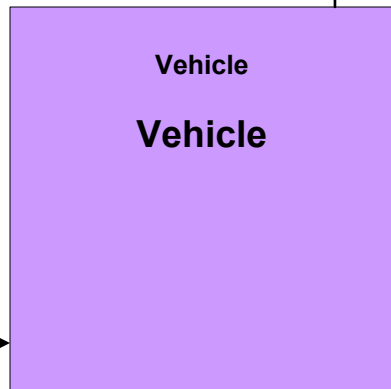
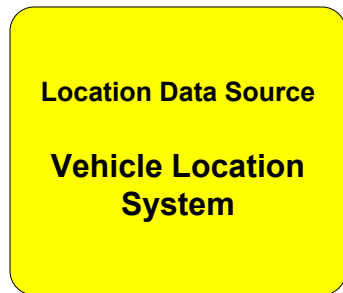


APTS1 - Transit Vehicle Tracking MTA Metro North Railroad

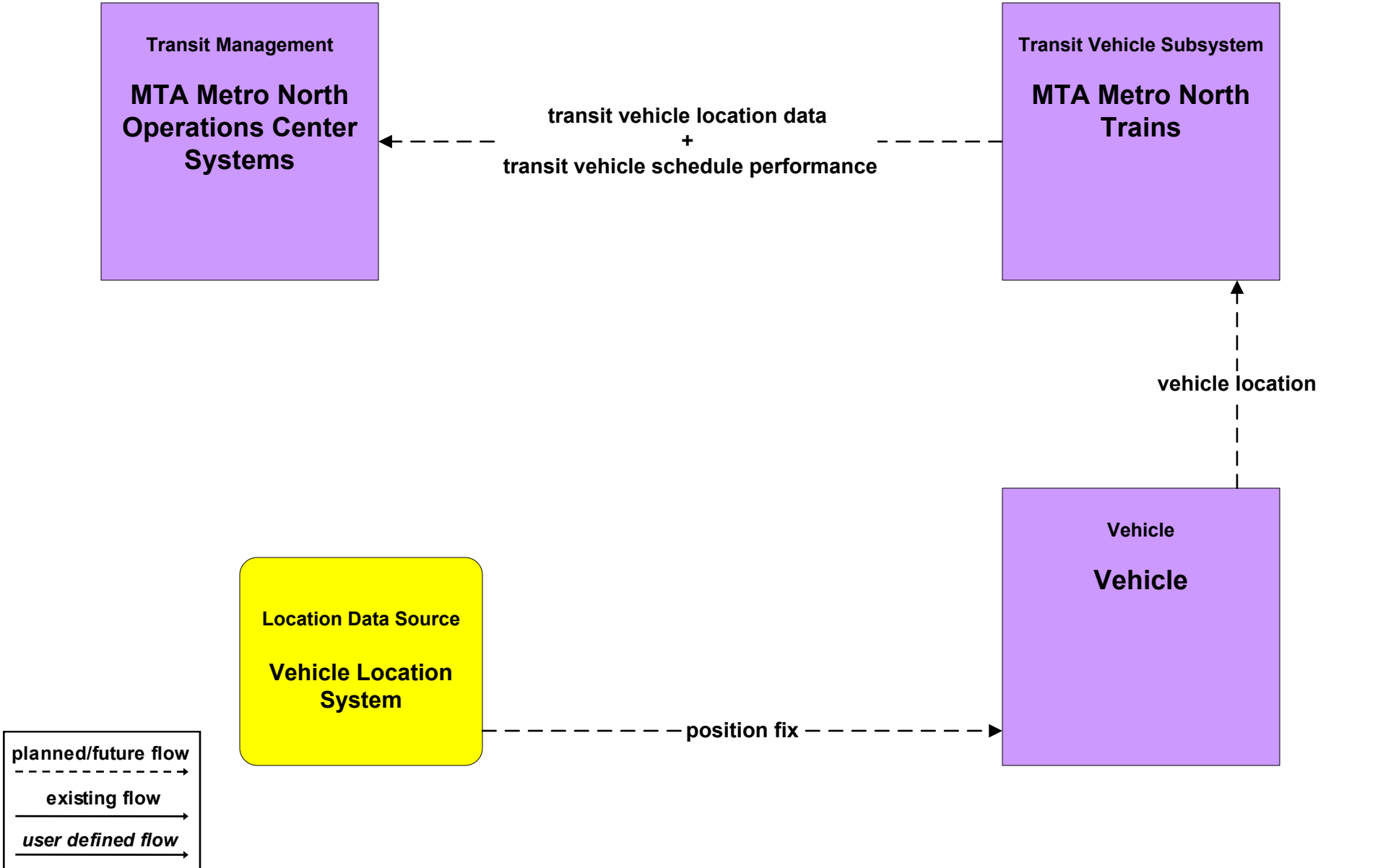
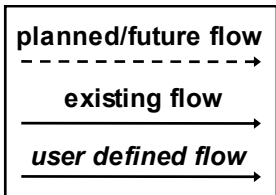


transit vehicle location data
+
transit vehicle schedule performance

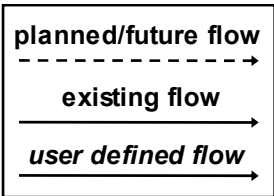
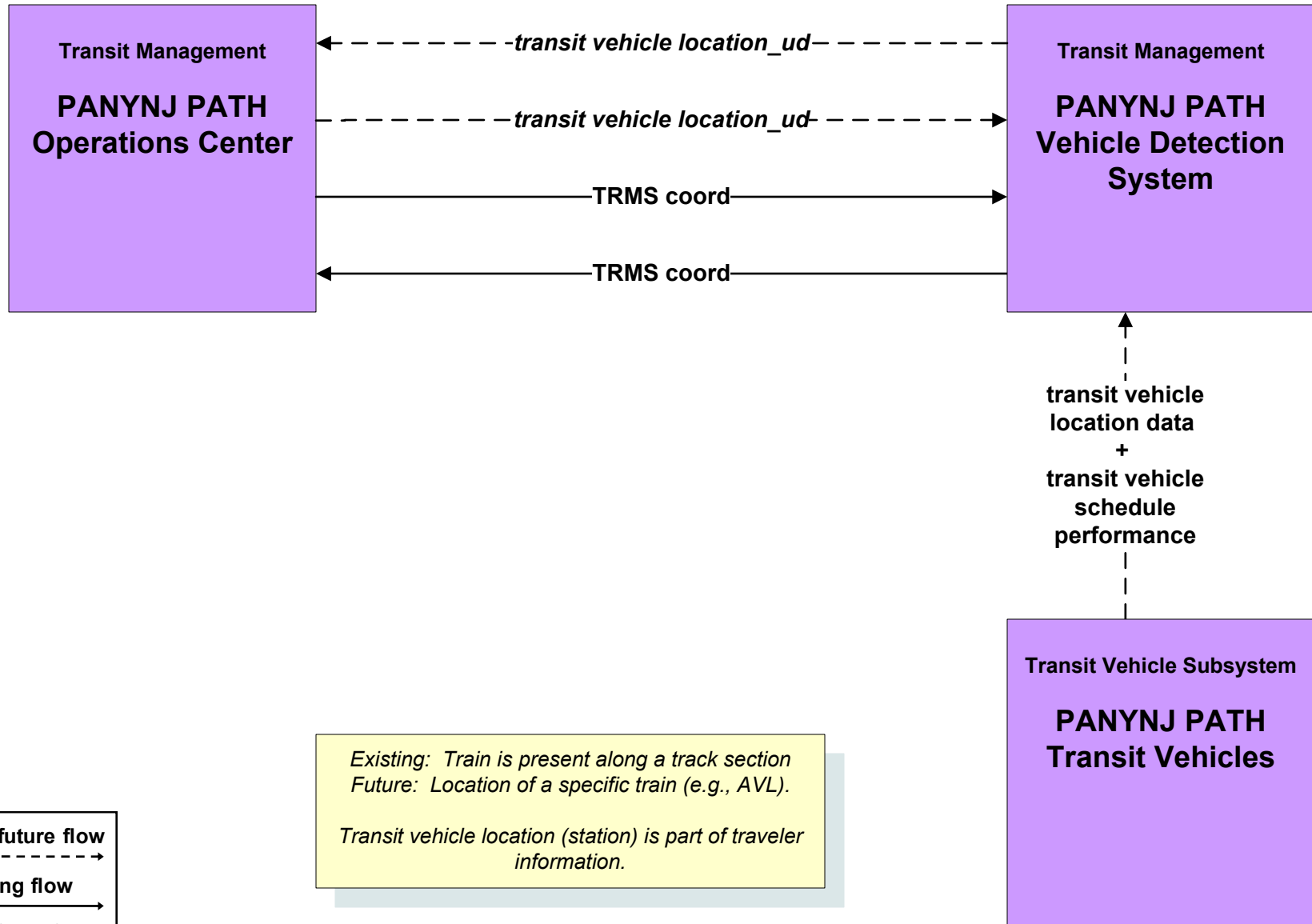
vehicle location



position fix



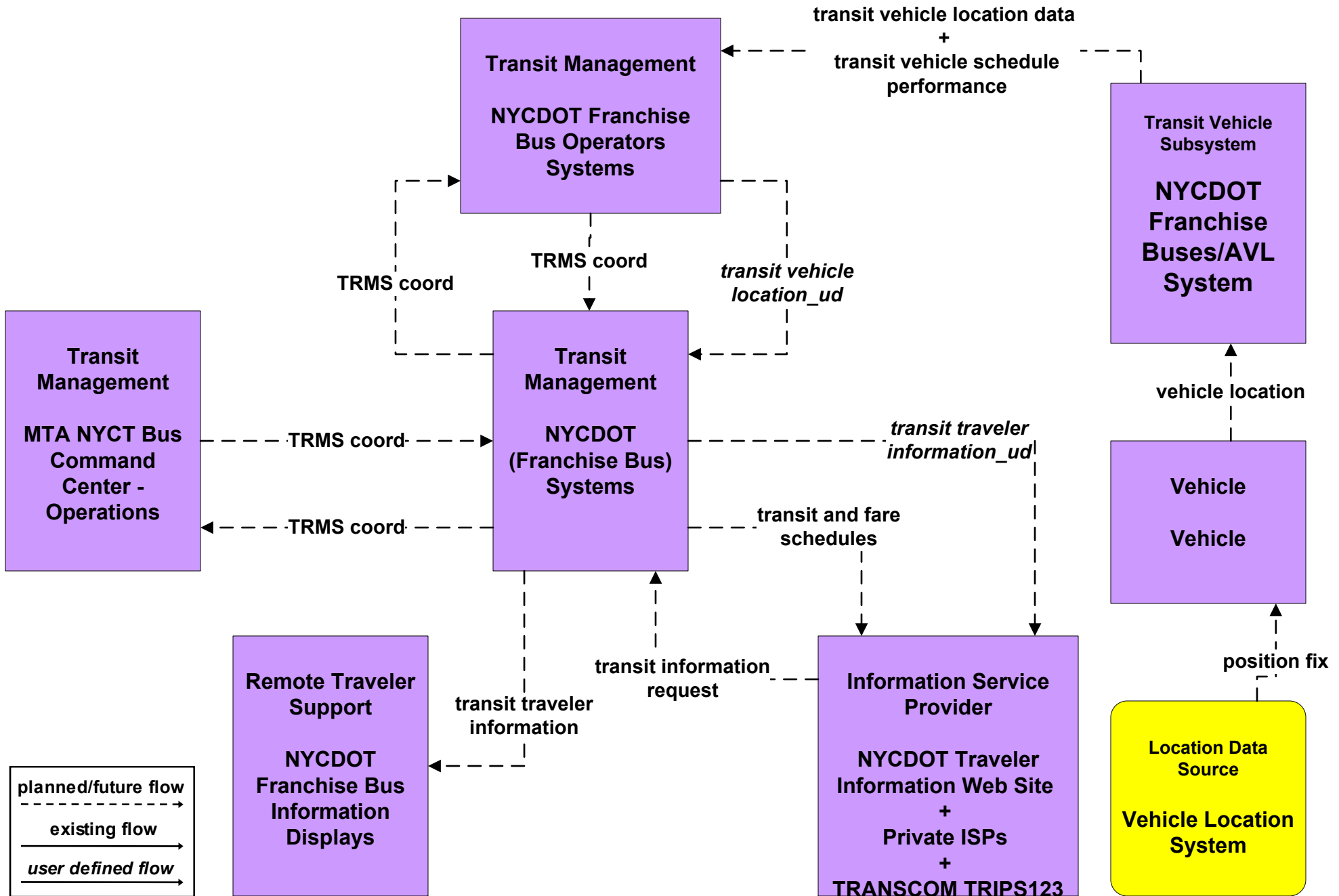
APTS1 - Transit Vehicle Tracking PANYNJ PATH



Existing: Train is present along a track section
Future: Location of a specific train (e.g., AVL).

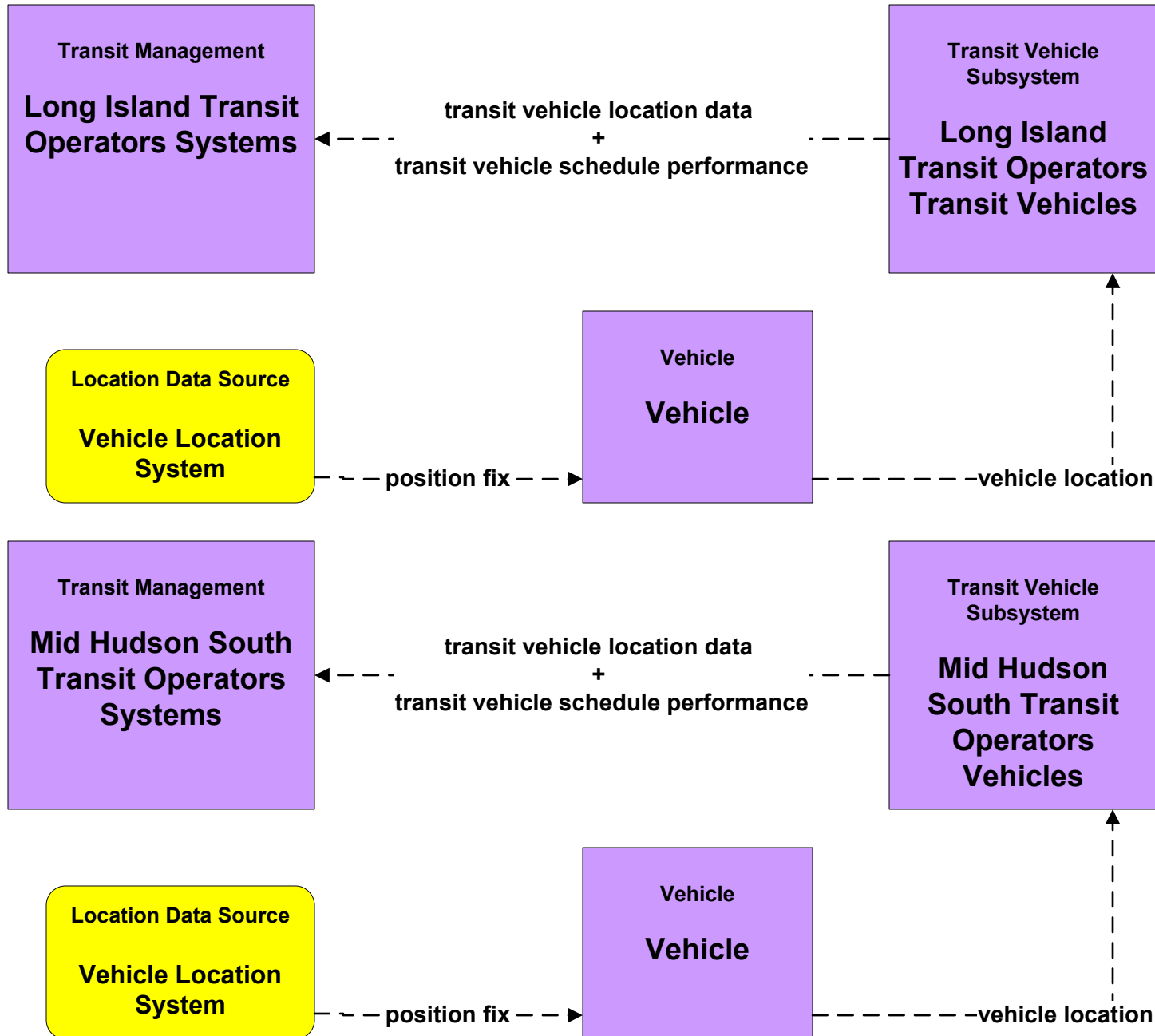
Transit vehicle location (station) is part of traveler information.

APTS1 - Transit Vehicle Tracking NYCDOT Franchise Buses

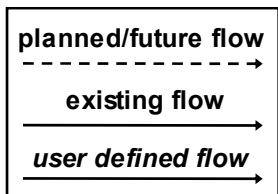
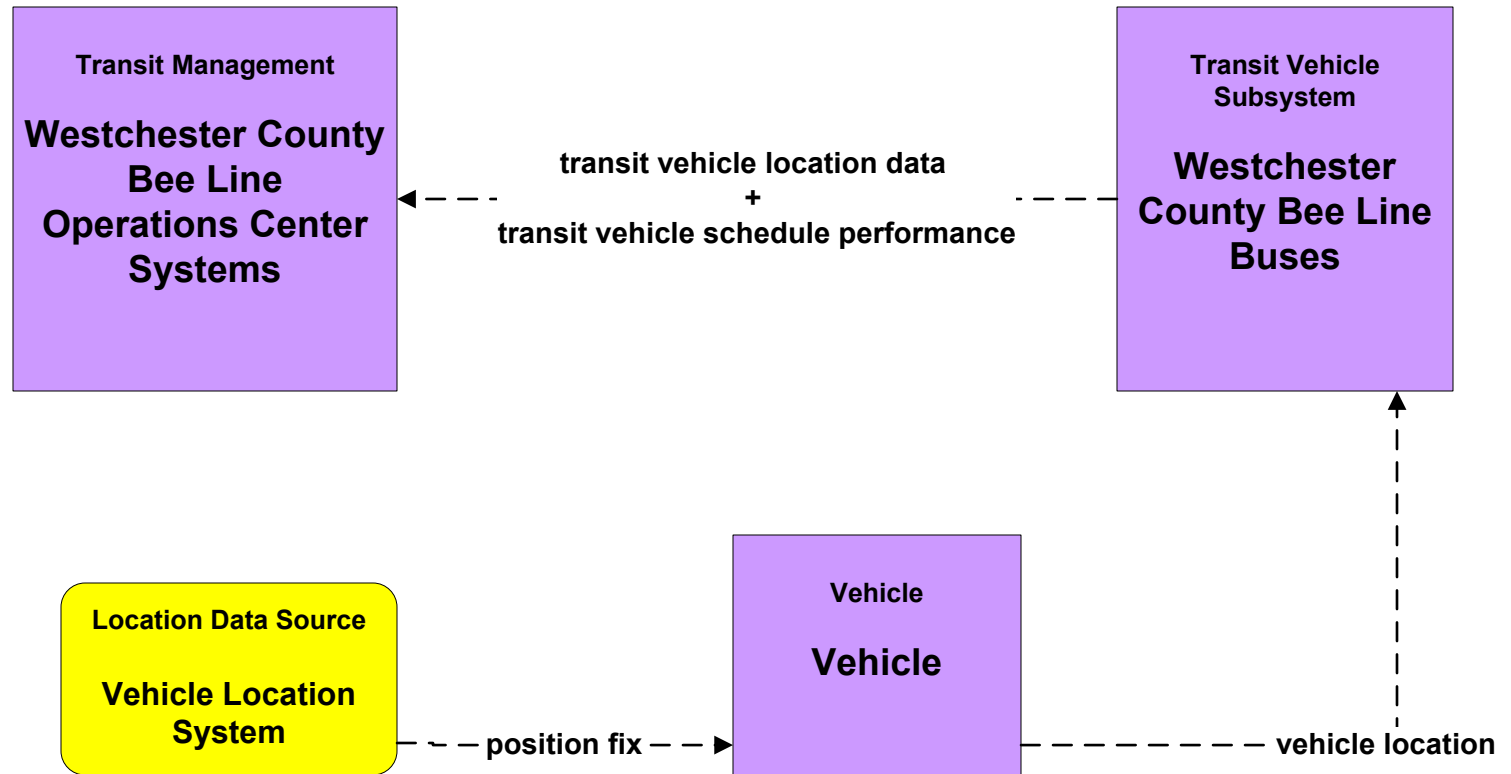


APTS1 - Transit Vehicle Tracking

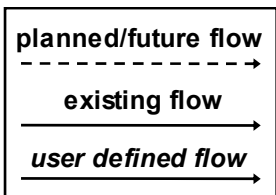
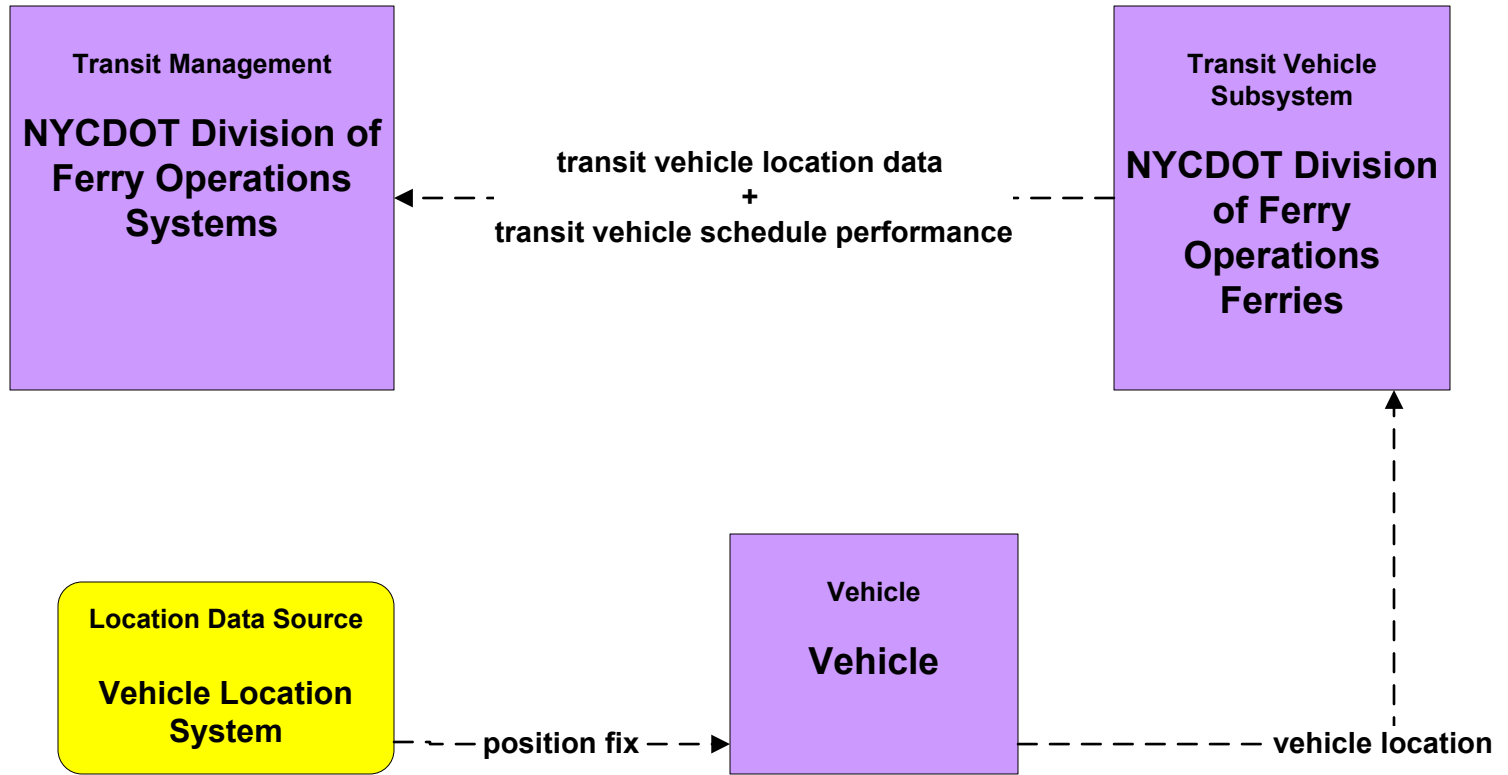
Long Island Transit Operators, Mid Hudson South Transit Operators



APTS1 - Transit Vehicle Tracking Westchester County Bee Line



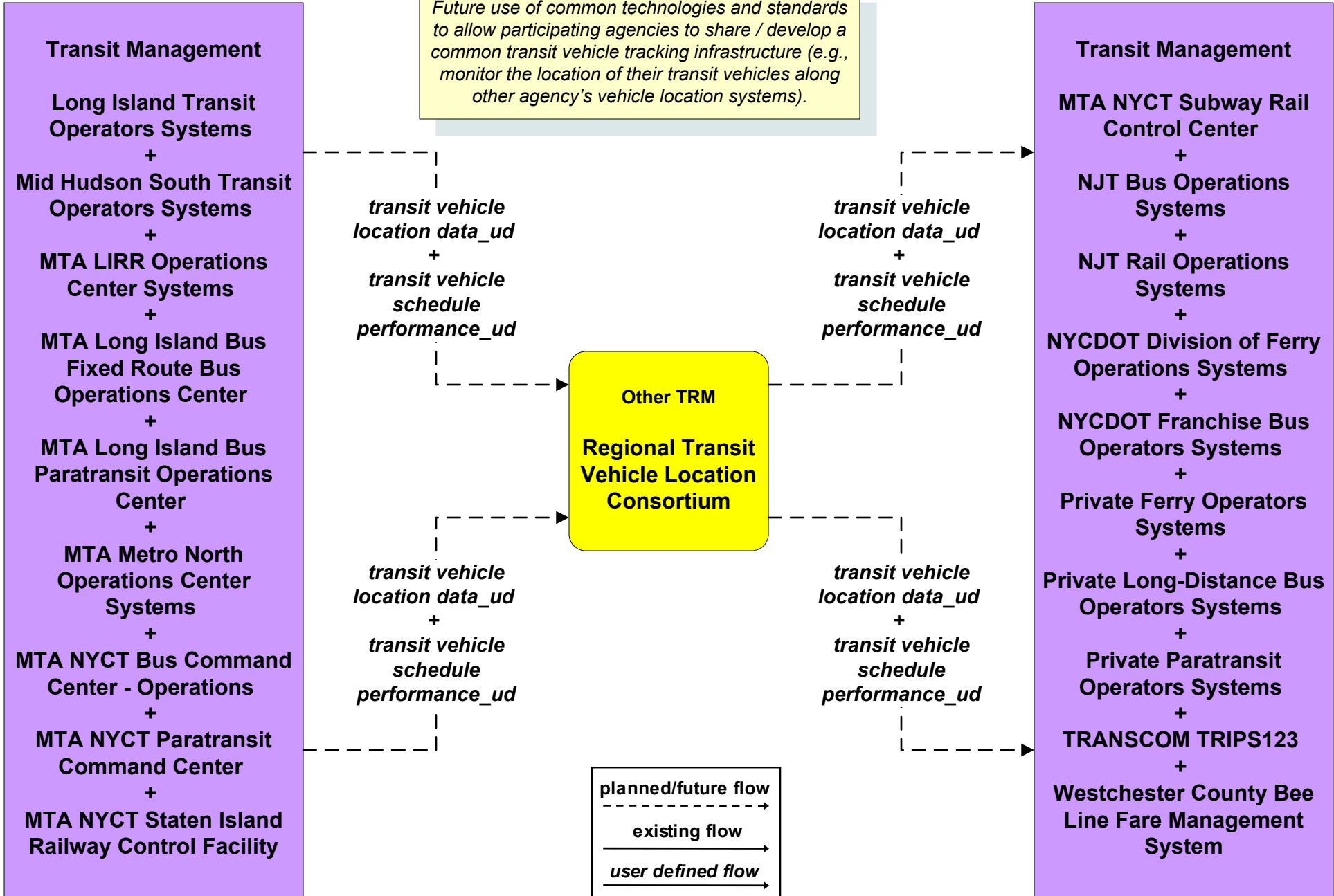
**APTS1 - Transit Vehicle Tracking
NYCDOT Division of Ferries**



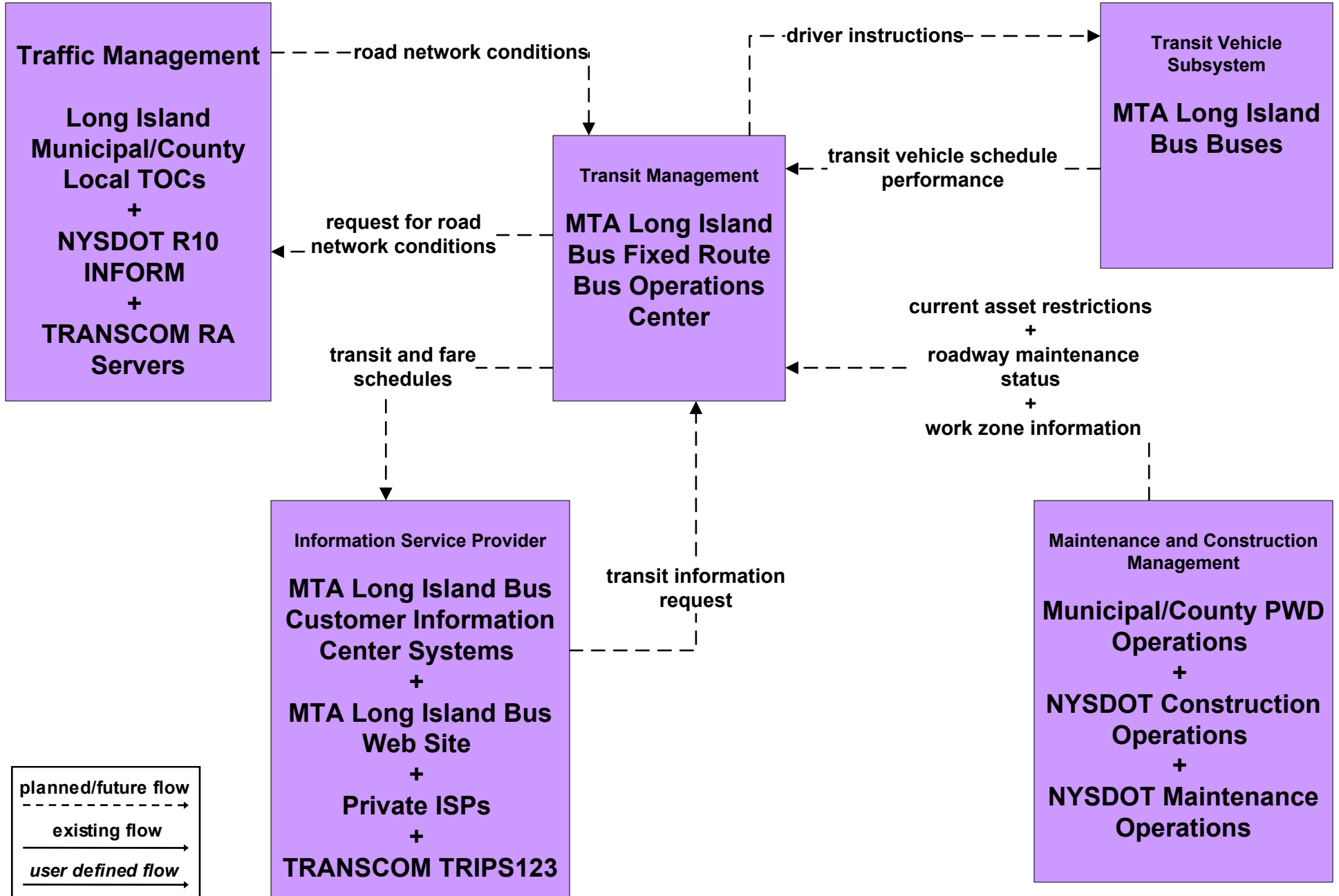
APTS1 - Transit Vehicle Tracking

New York City Metropolitan Area Regional Transit Vehicle Location Consortium

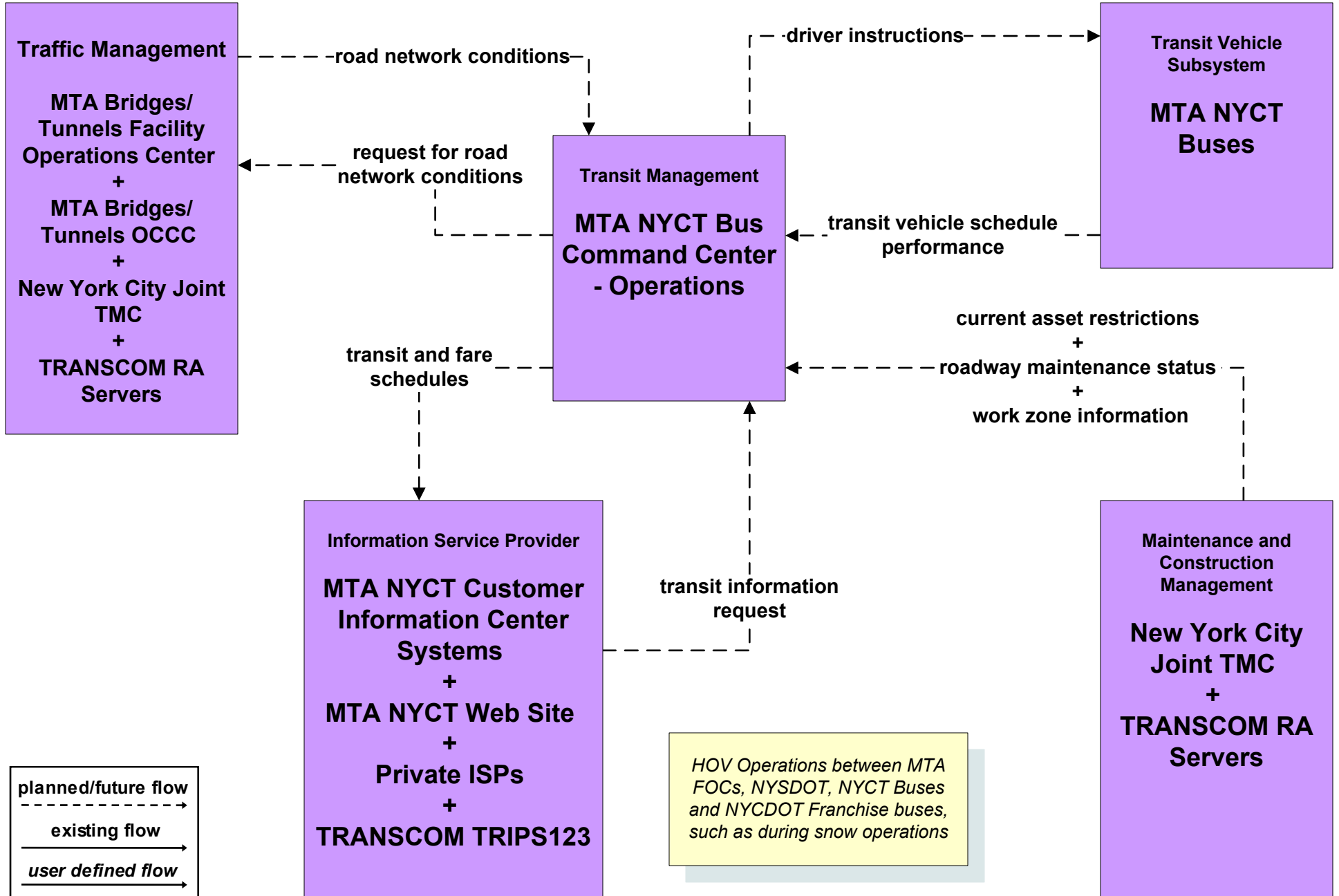
Future use of common technologies and standards to allow participating agencies to share / develop a common transit vehicle tracking infrastructure (e.g., monitor the location of their transit vehicles along other agency's vehicle location systems).



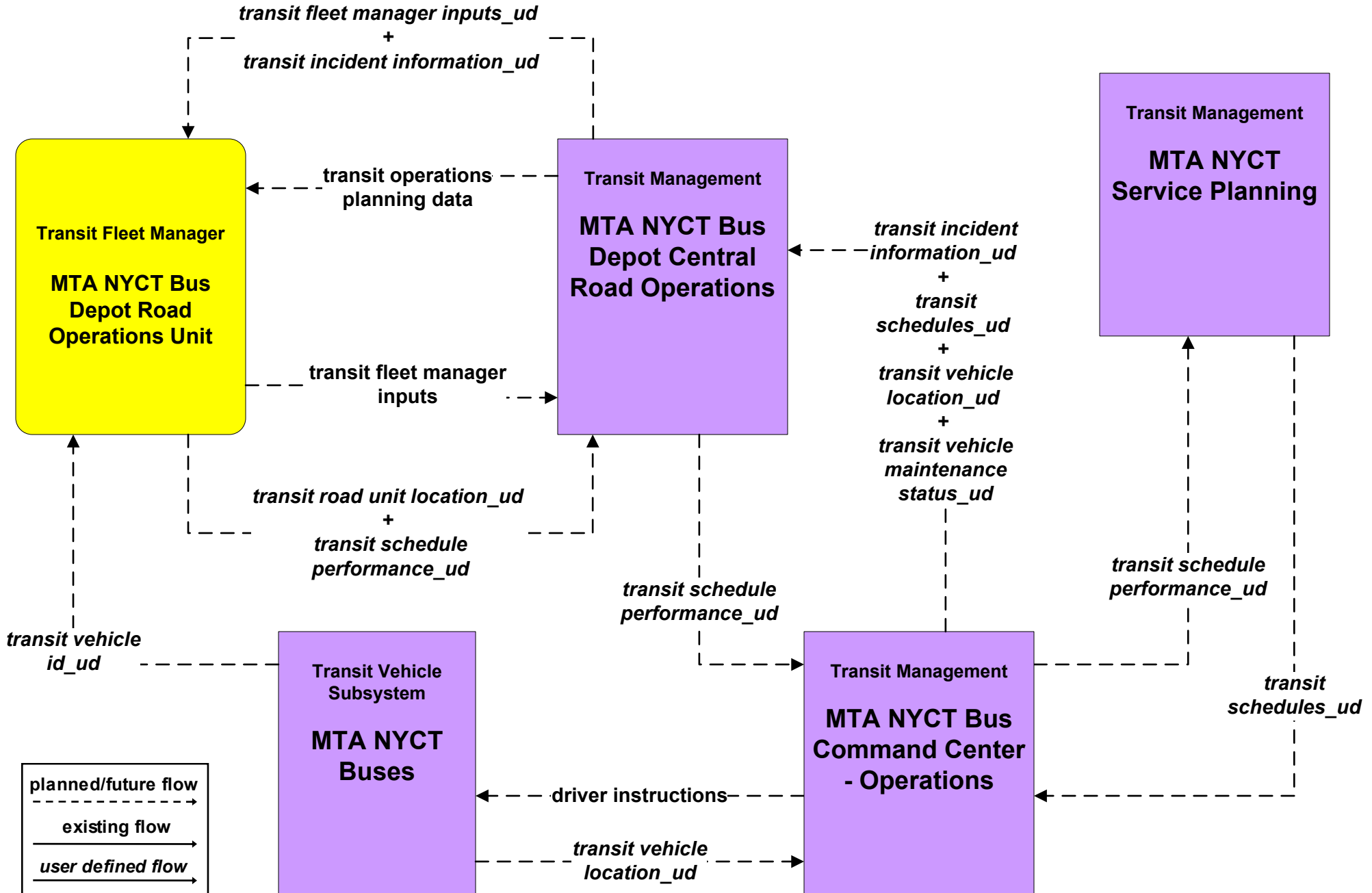
**APTS2 - Transit Fixed-Route Operations
MTA Long Island Bus**



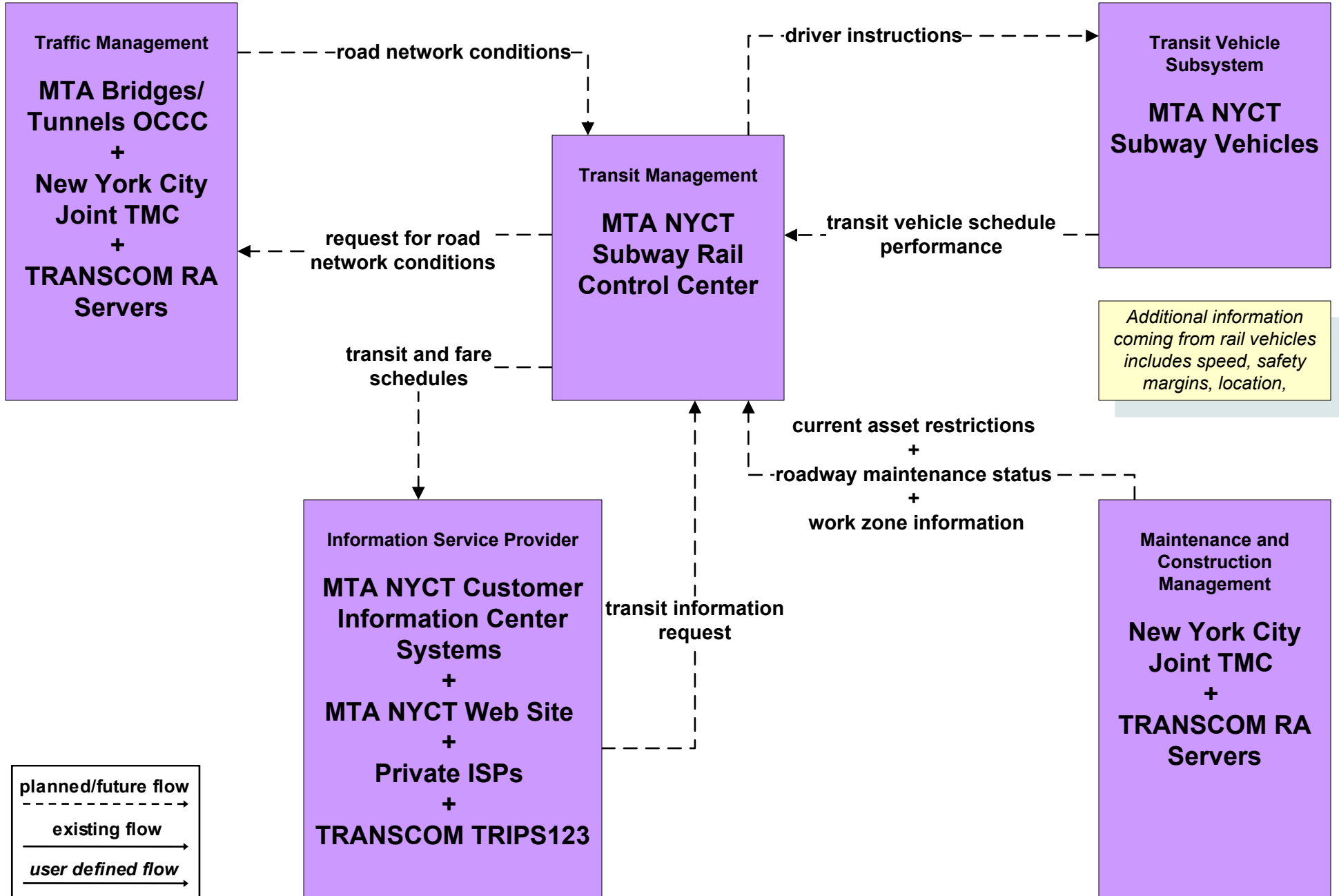
APTS2 - Transit Fixed-Route Operations MTA NYC Transit Bus (1 of 2)



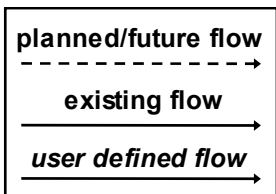
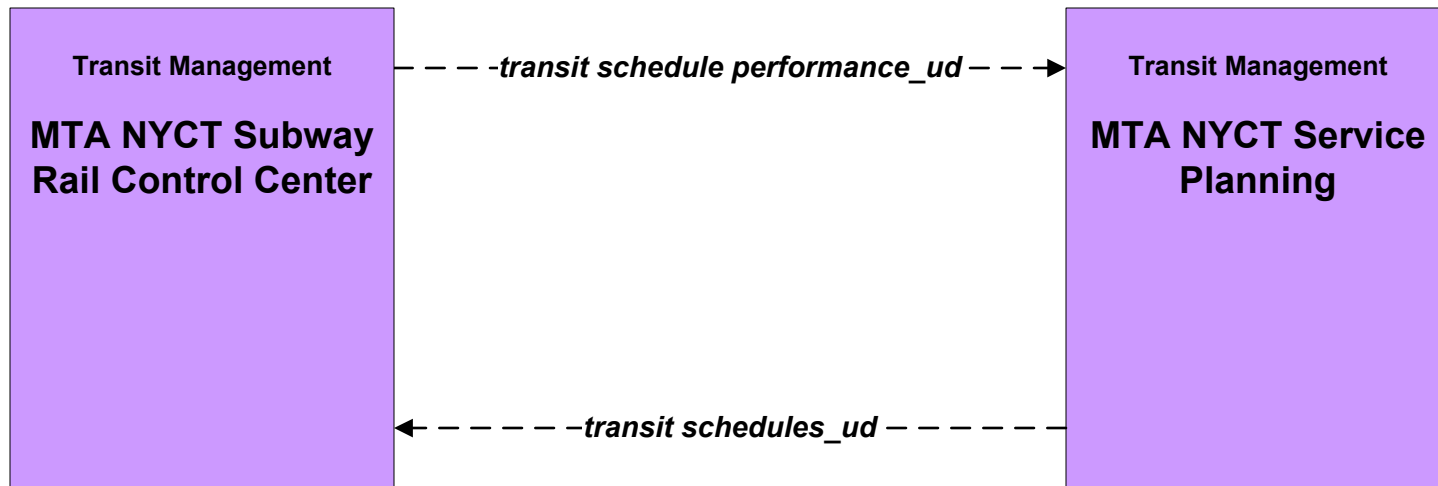
**APTS2 - Transit Fixed-Route Operations
MTA NYC Transit Bus (2 of 2)**



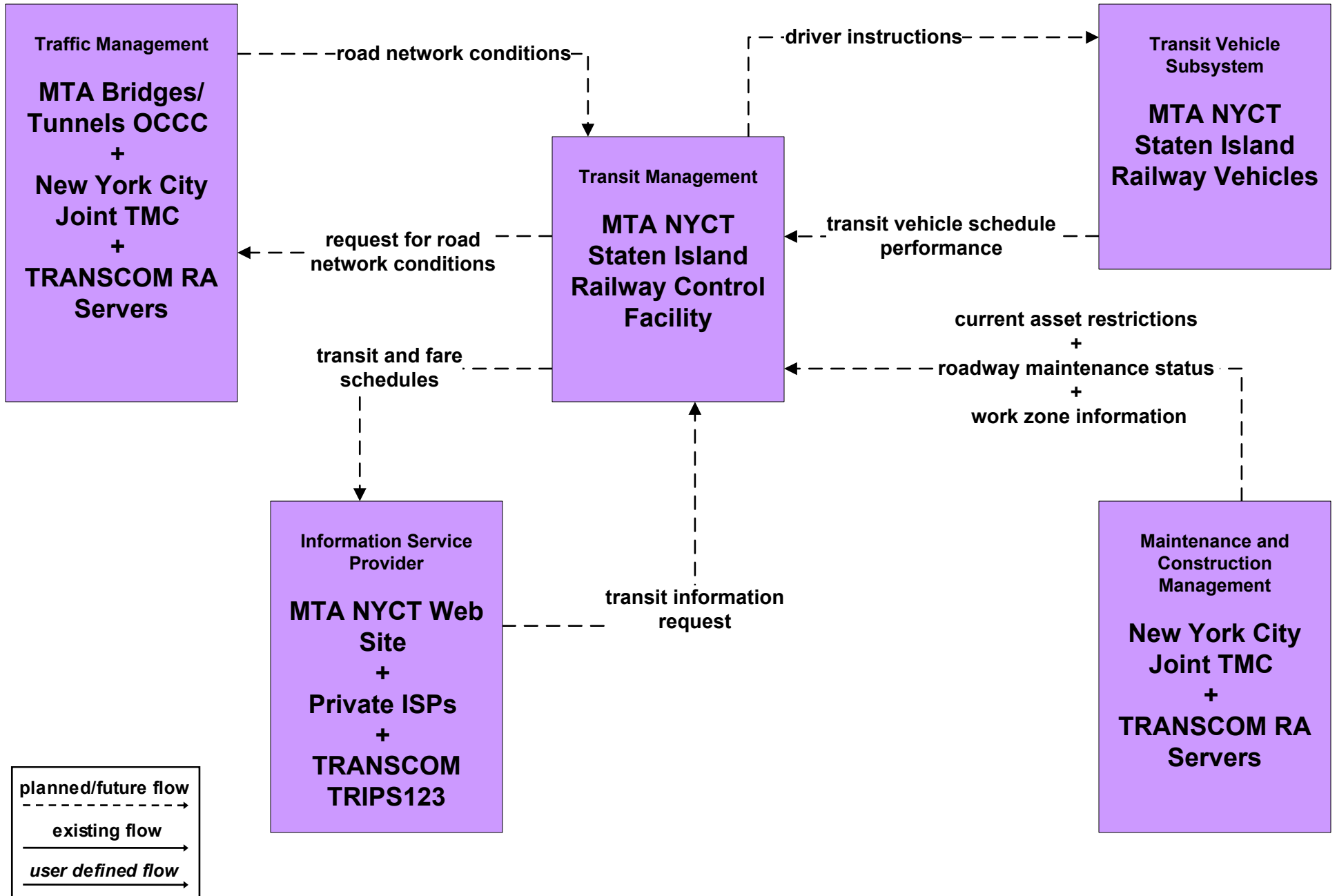
APTS2 - Transit Fixed-Route Operations MTA NYC Transit Subway (1 of 2)



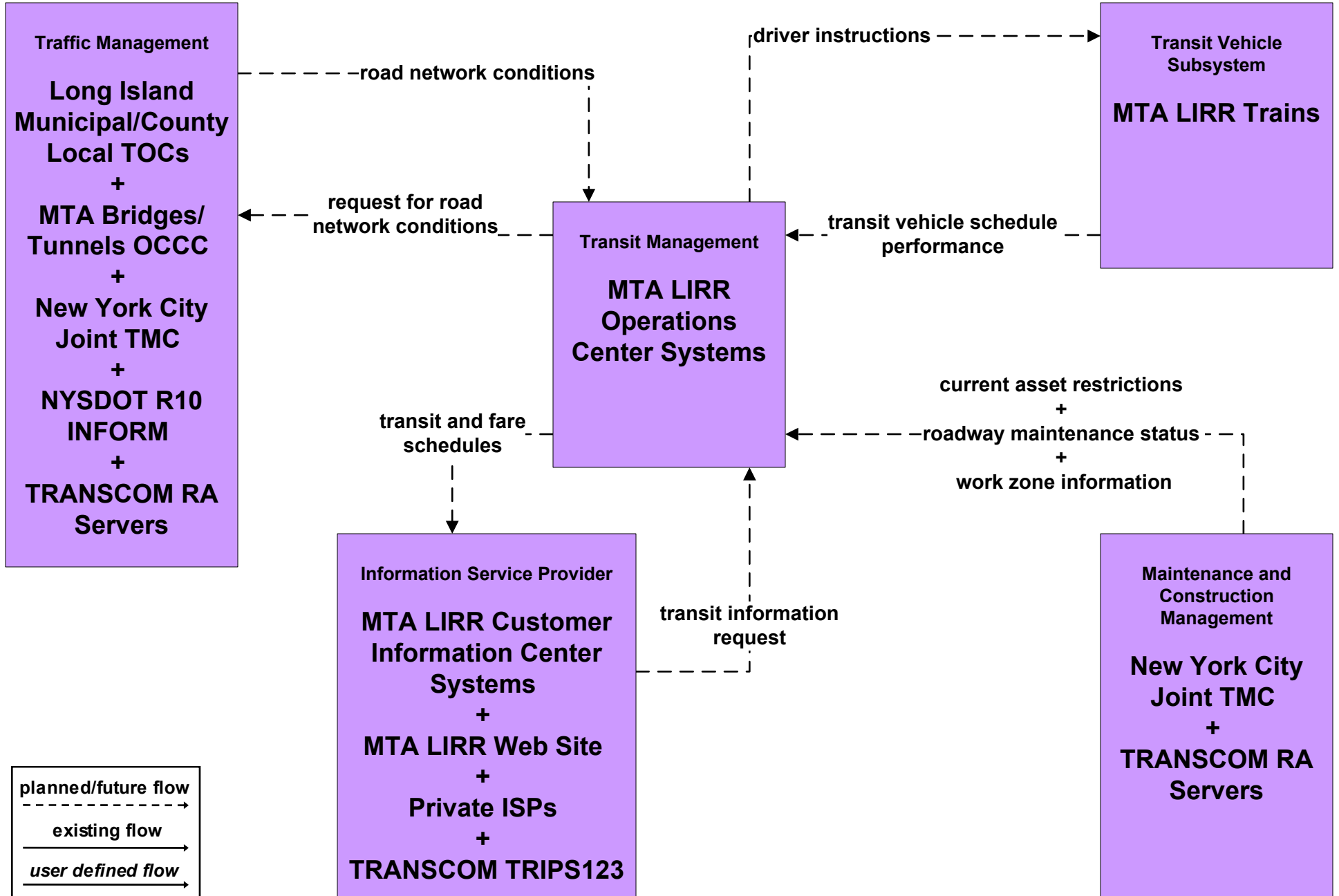
**APTS2 - Transit Fixed-Route Operations
MTA NYC Transit Subway (2 of 2)**



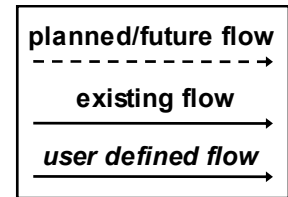
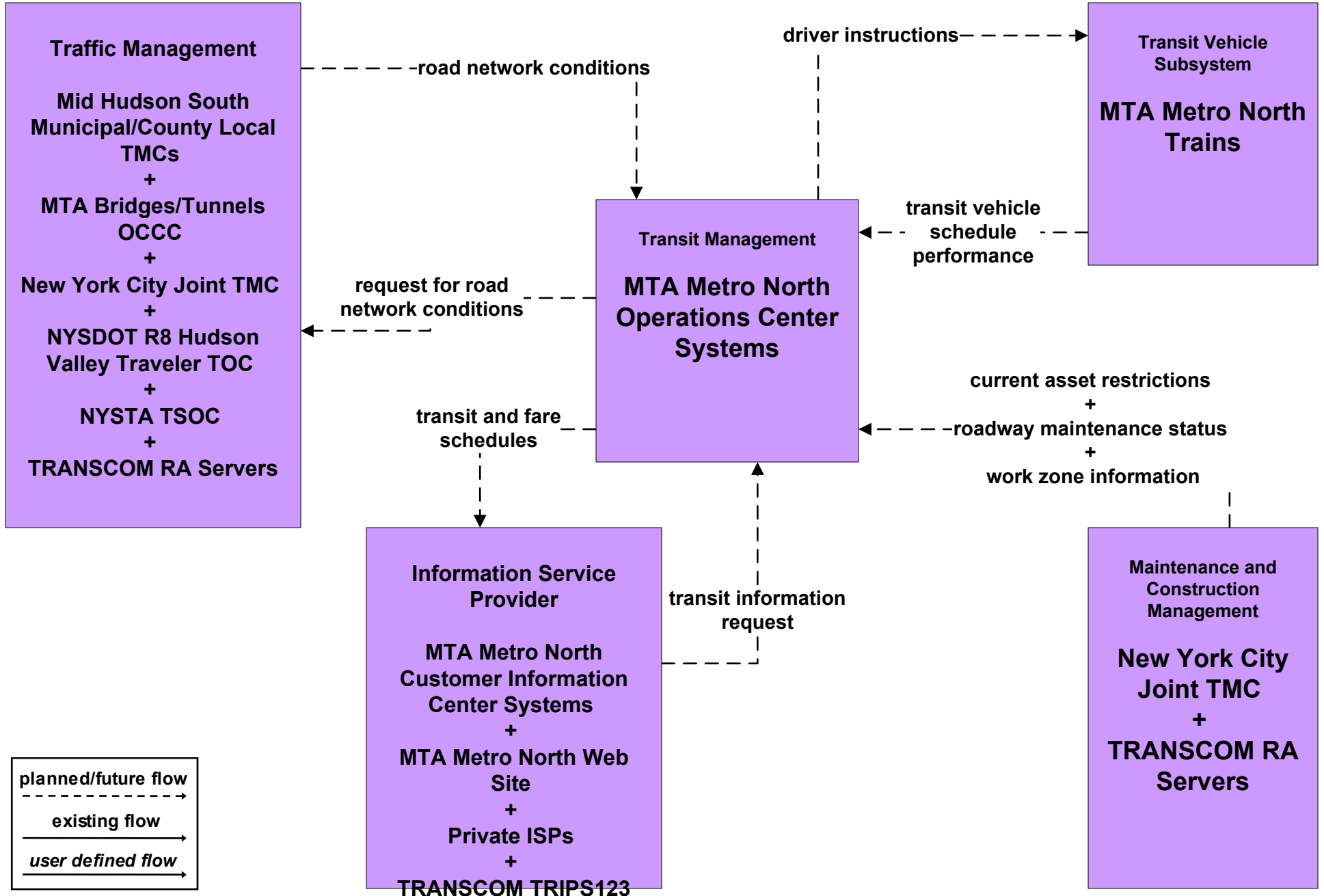
APTS2 - Transit Fixed-Route Operations MTA NYCT Staten Island Railway



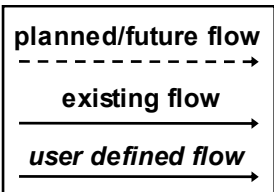
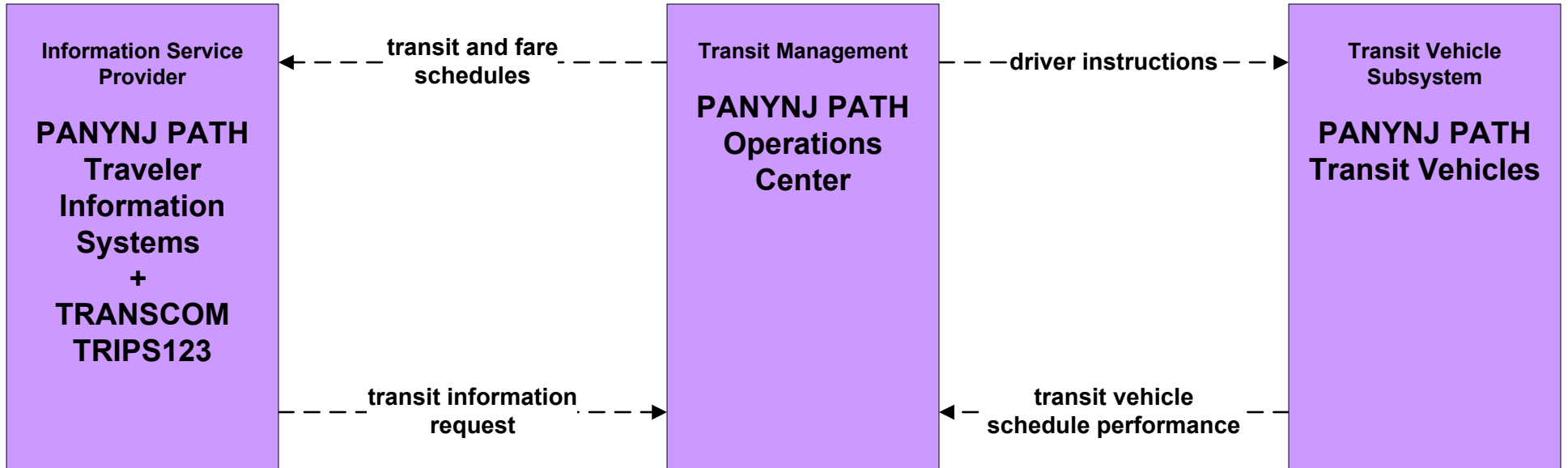
APTS2 - Transit Fixed-Route Operations MTA Long Island Rail Road



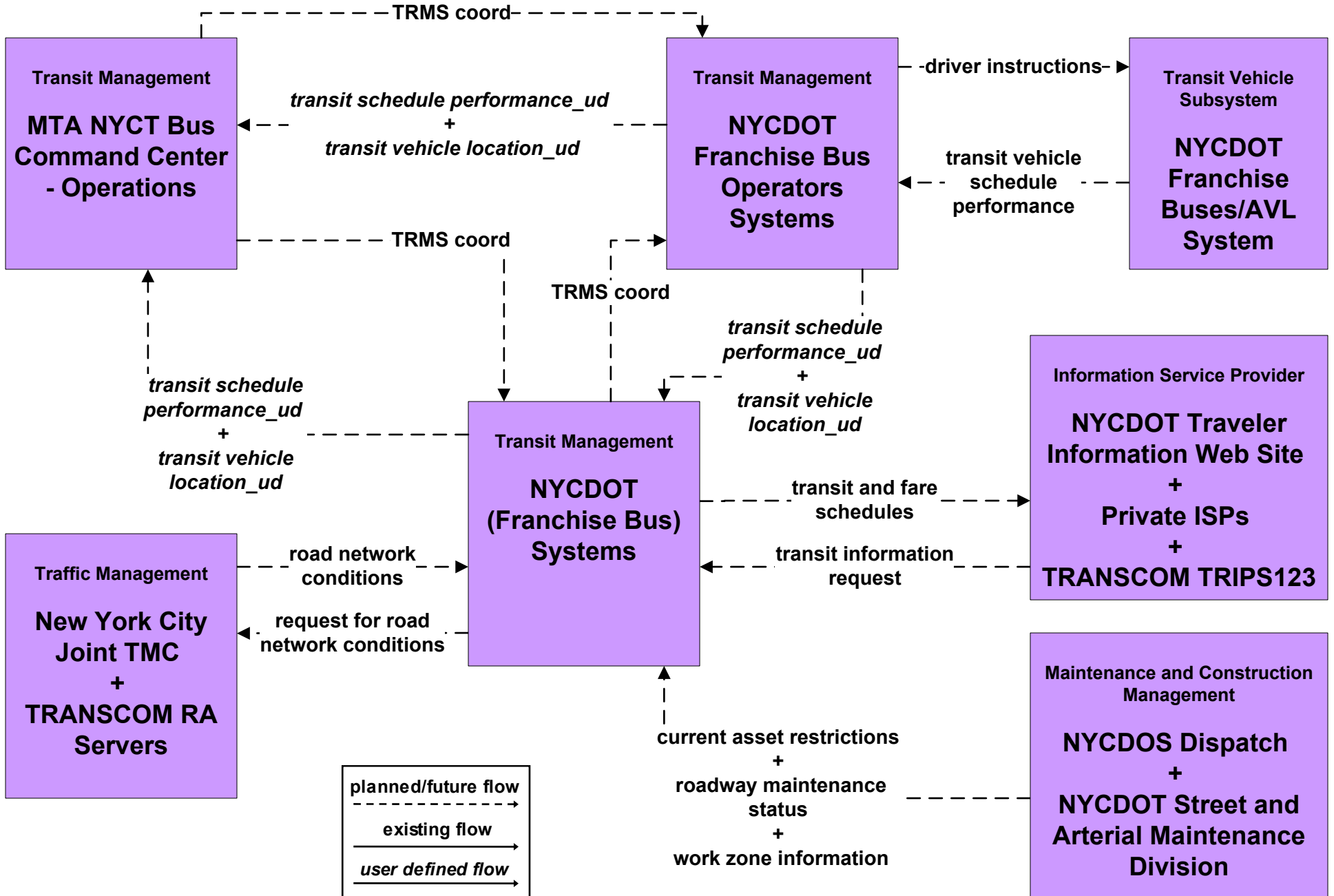
APTS2 - Transit Fixed-Route Operations MTA Metro North Railroad



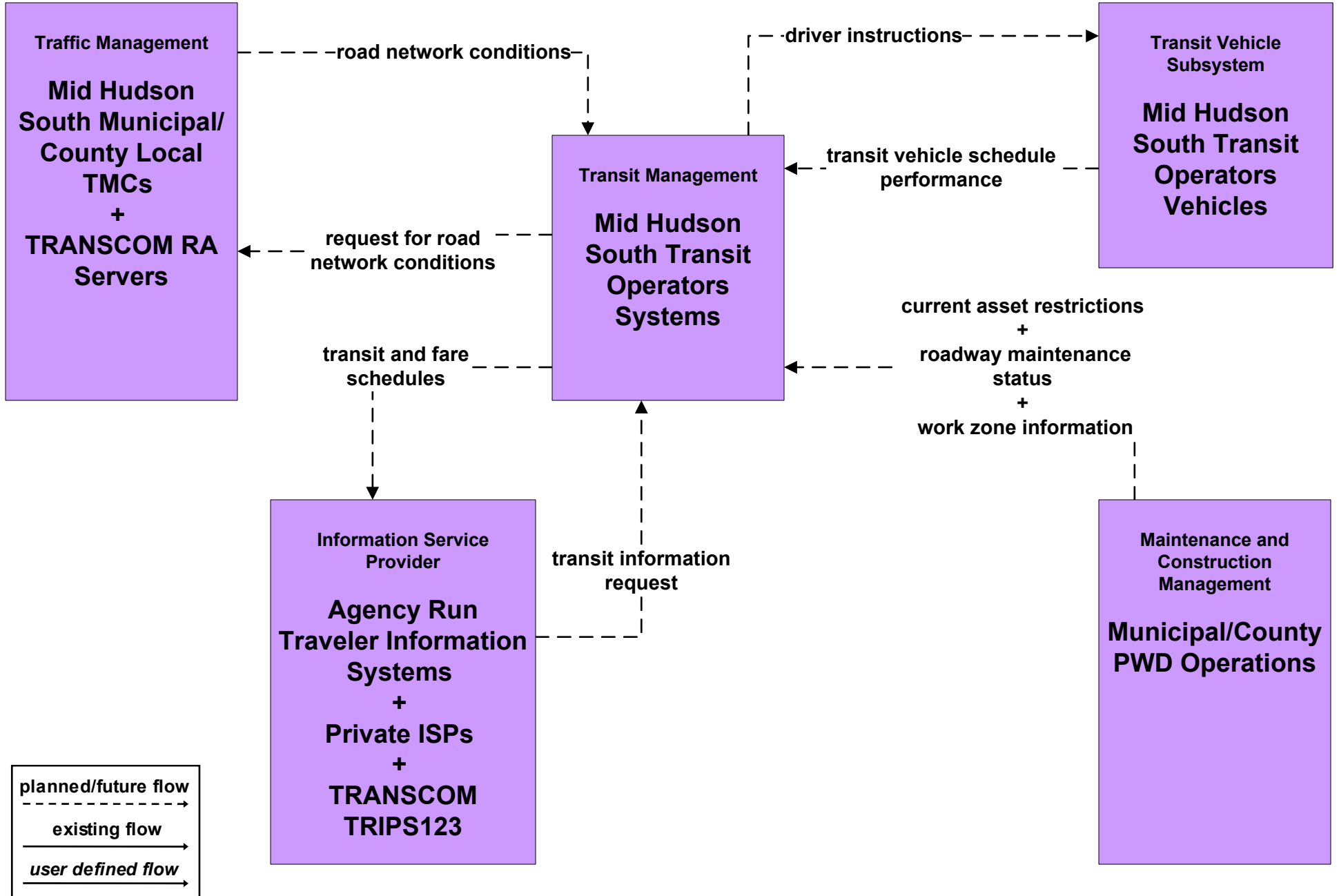
APTS2 - Transit Fixed-Route Operations PANYNJ PATH



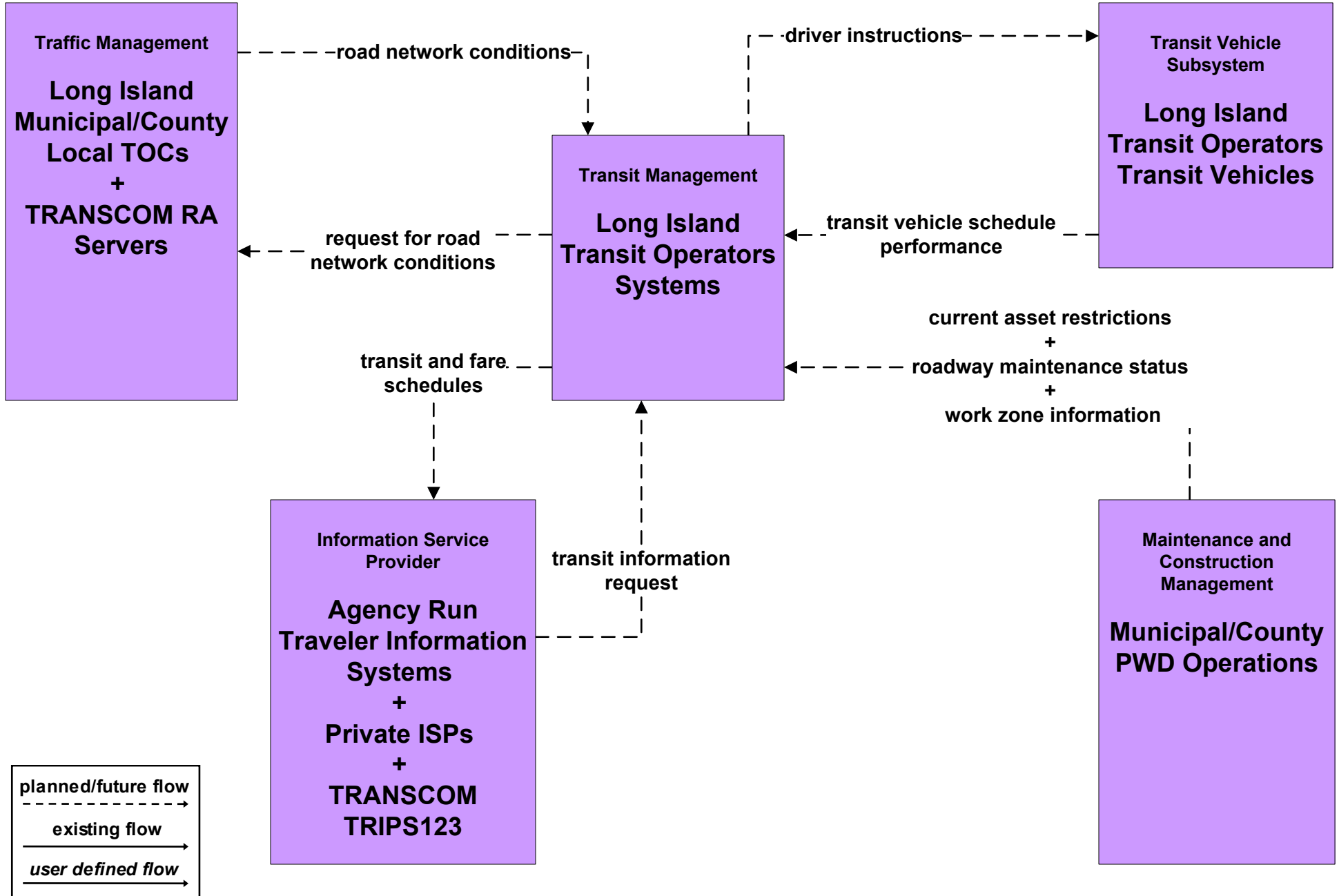
APTS2 - Transit Fixed-Route Operations NYCDOT Franchise Buses



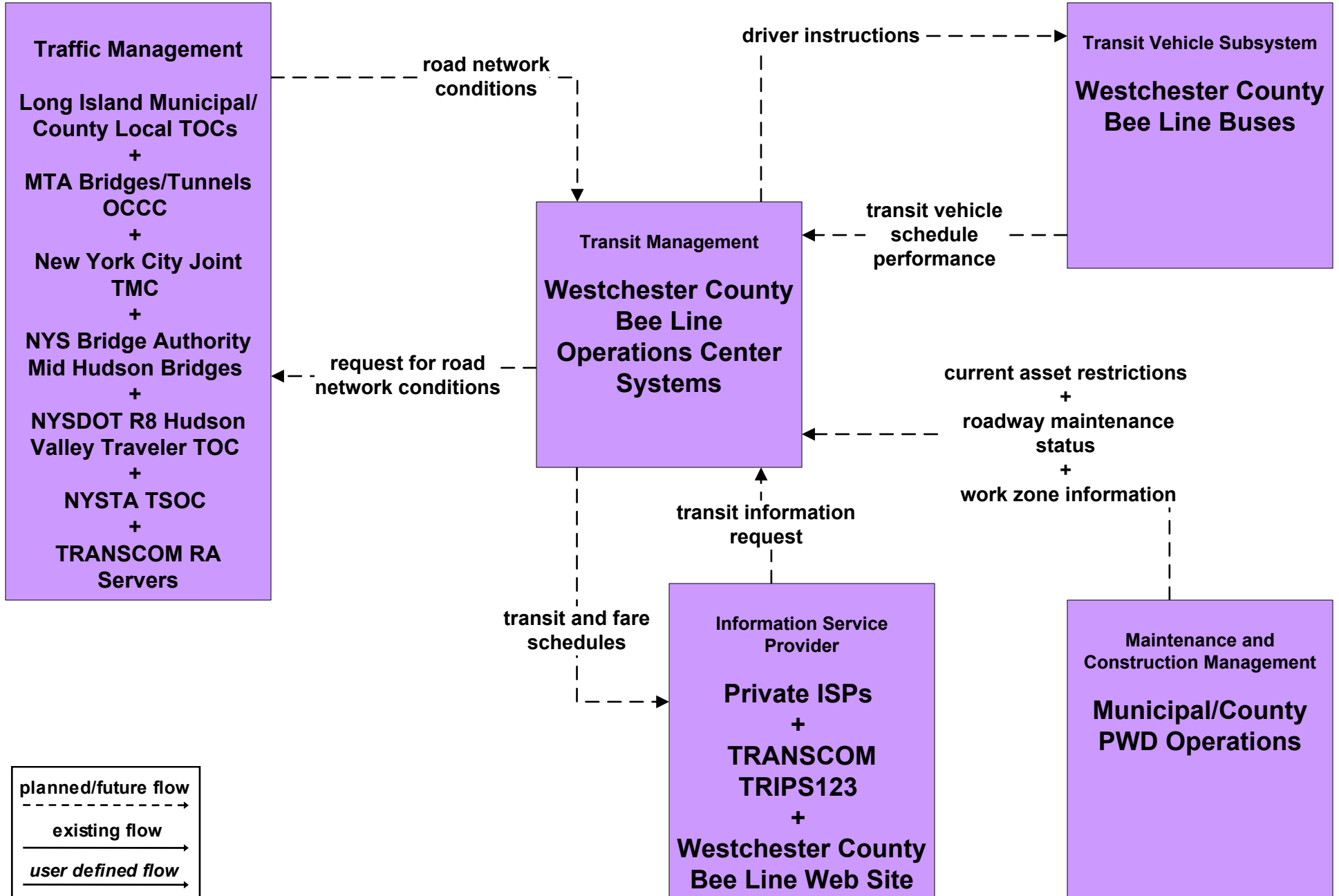
**APTS2 - Transit Fixed-Route Operations
Mid Hudson South Operators Systems**



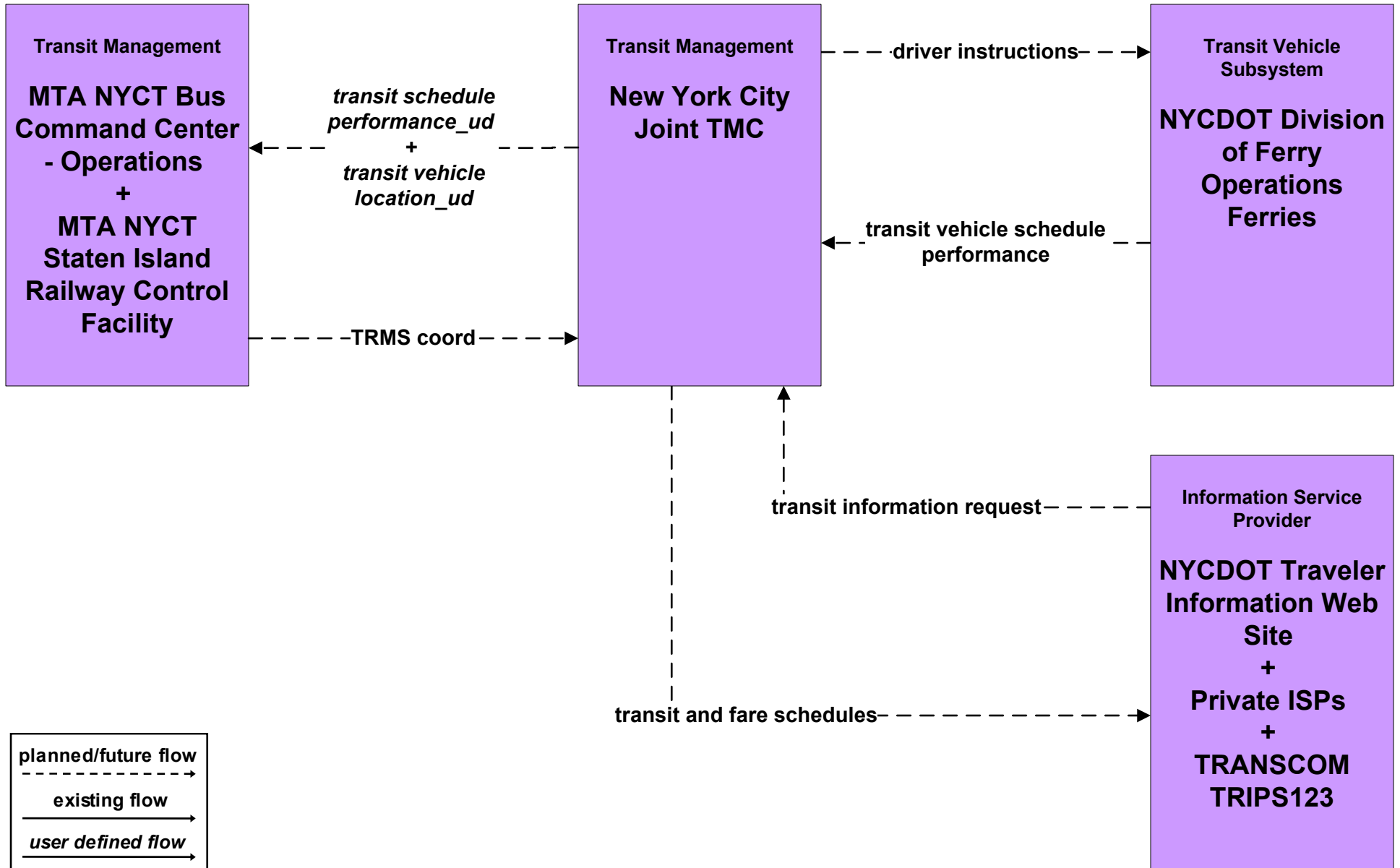
APTS2 - Transit Fixed-Route Operations Long Island Transit Operators Systems



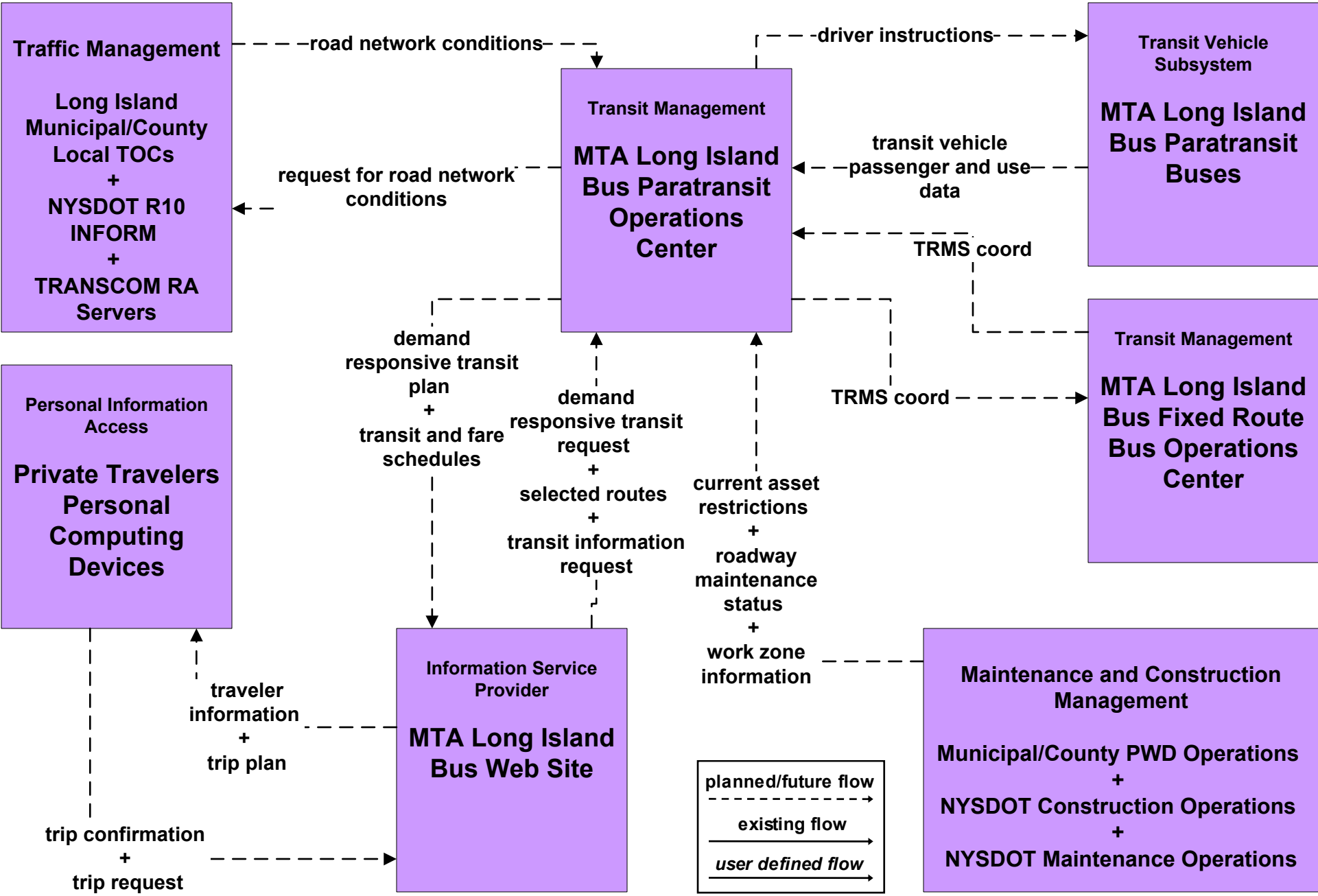
APTS2 - Transit Fixed-Route Operations Westchester County Bee Line



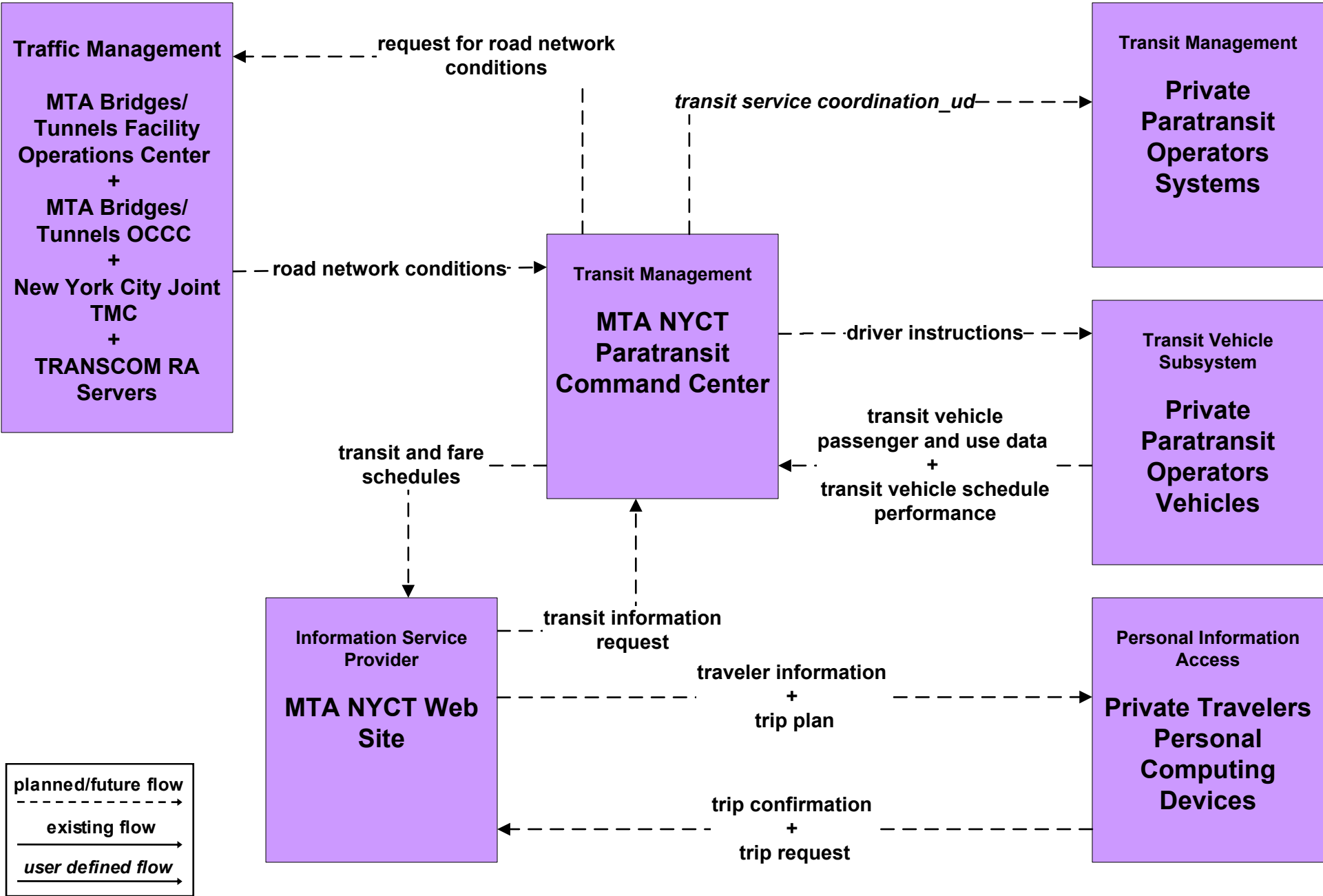
**APTS2 - Transit Fixed-Route Operations
NYCDOT Division of Ferry Operations**



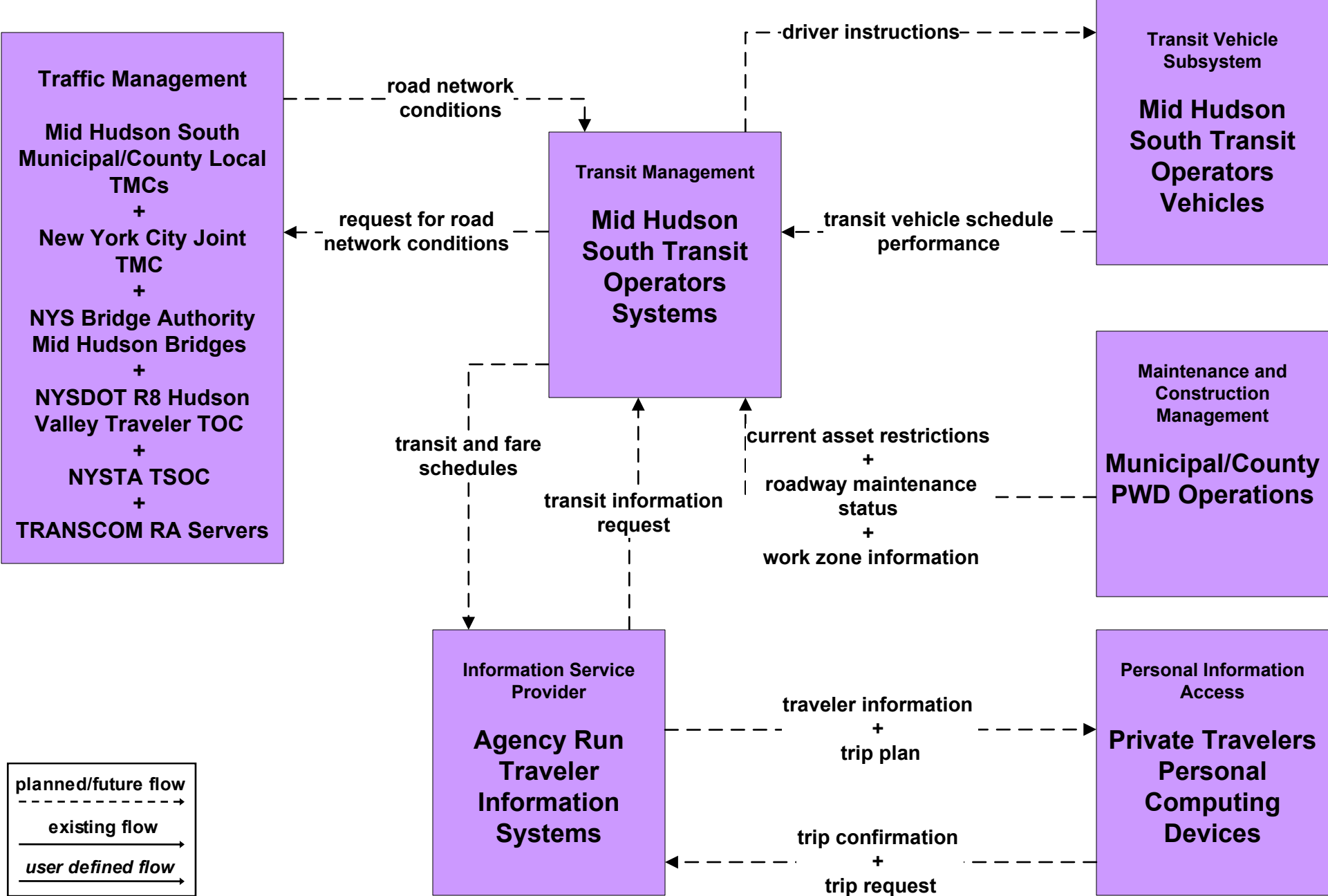
APTS3 - Demand Response Transit Operations MTA Long Island Bus Paratransit



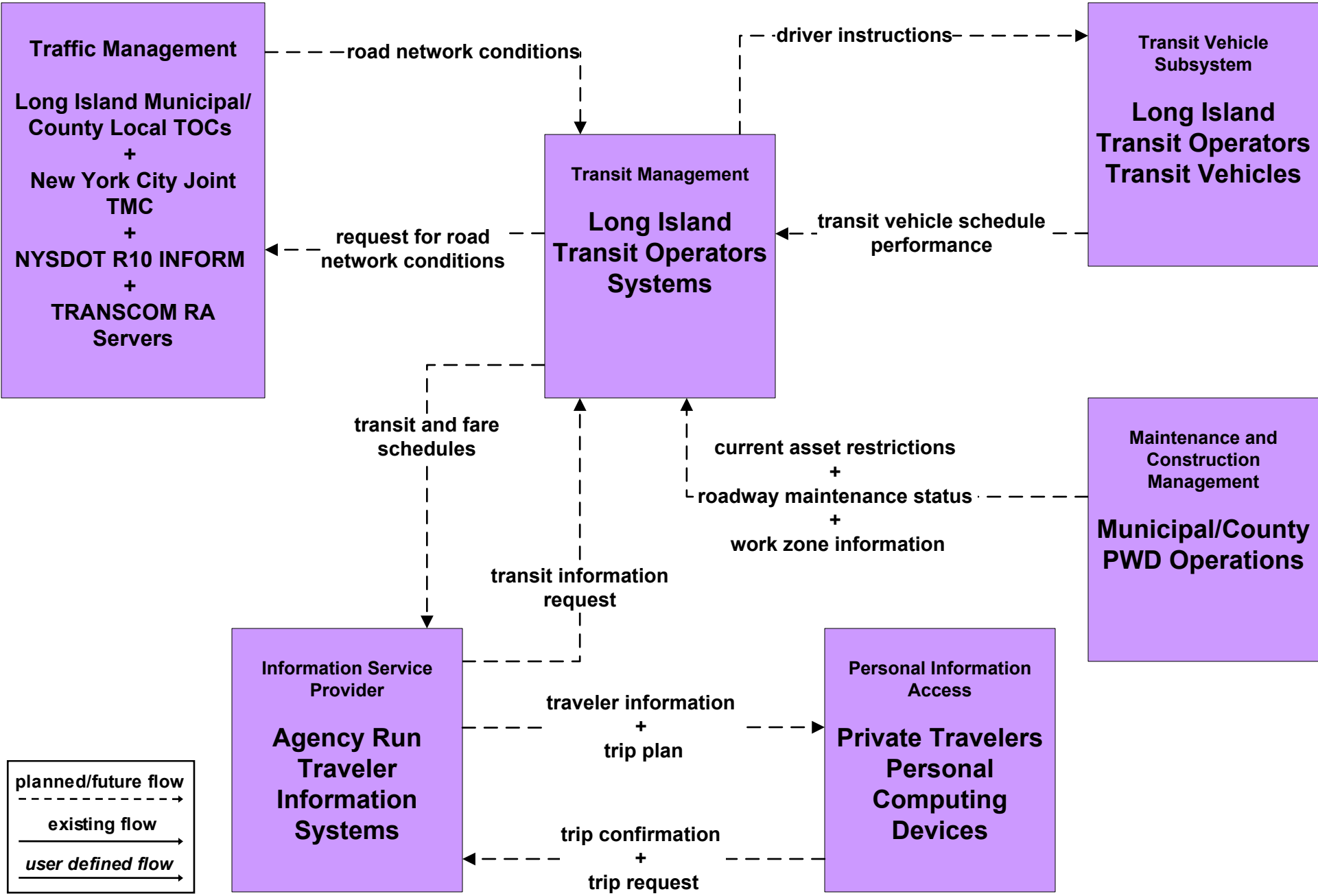
APTS3 - Demand Response Transit Operations MTA NYC Transit Paratransit



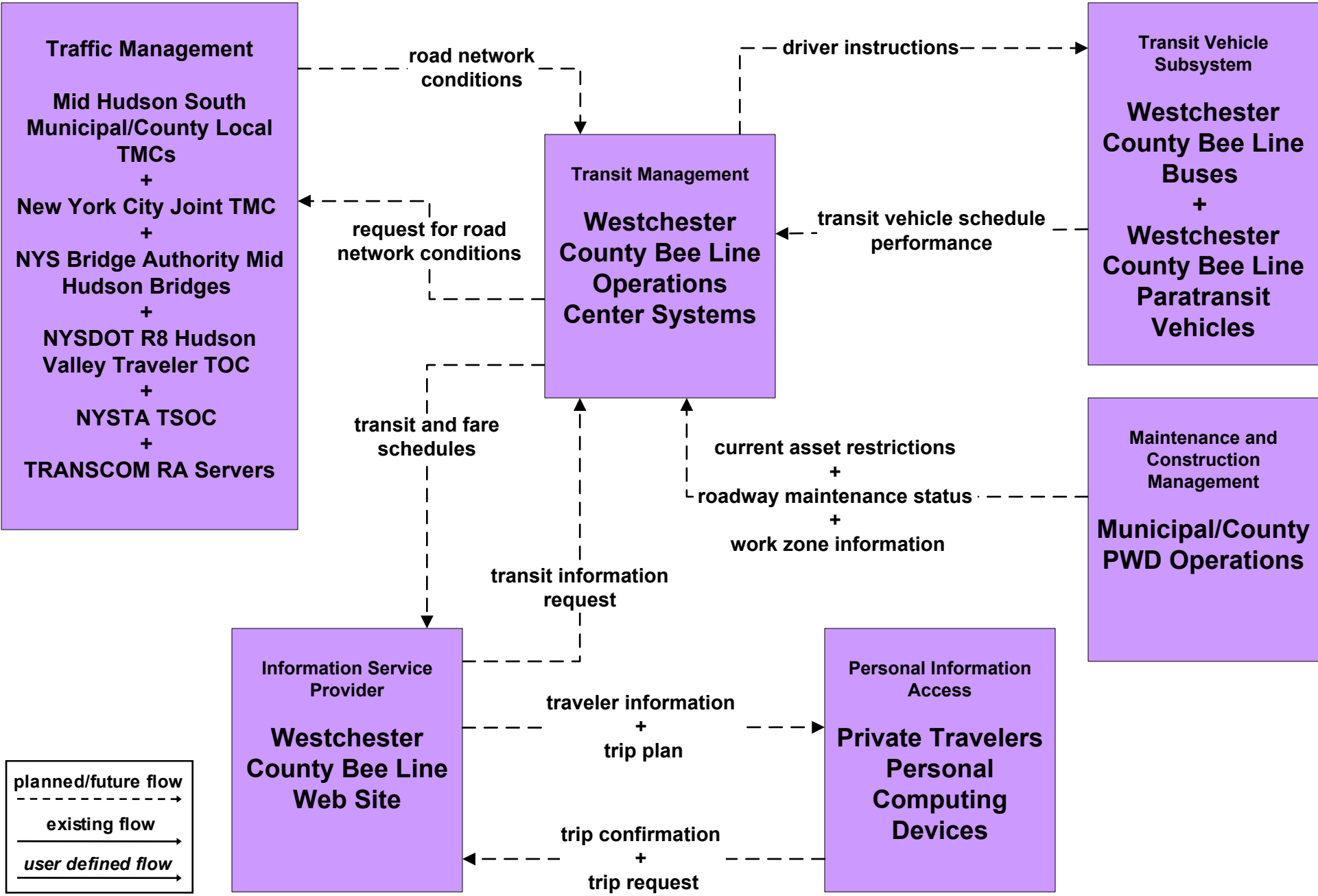
APTS3 - Demand Response Transit Operations Mid Hudson South Transit Operators



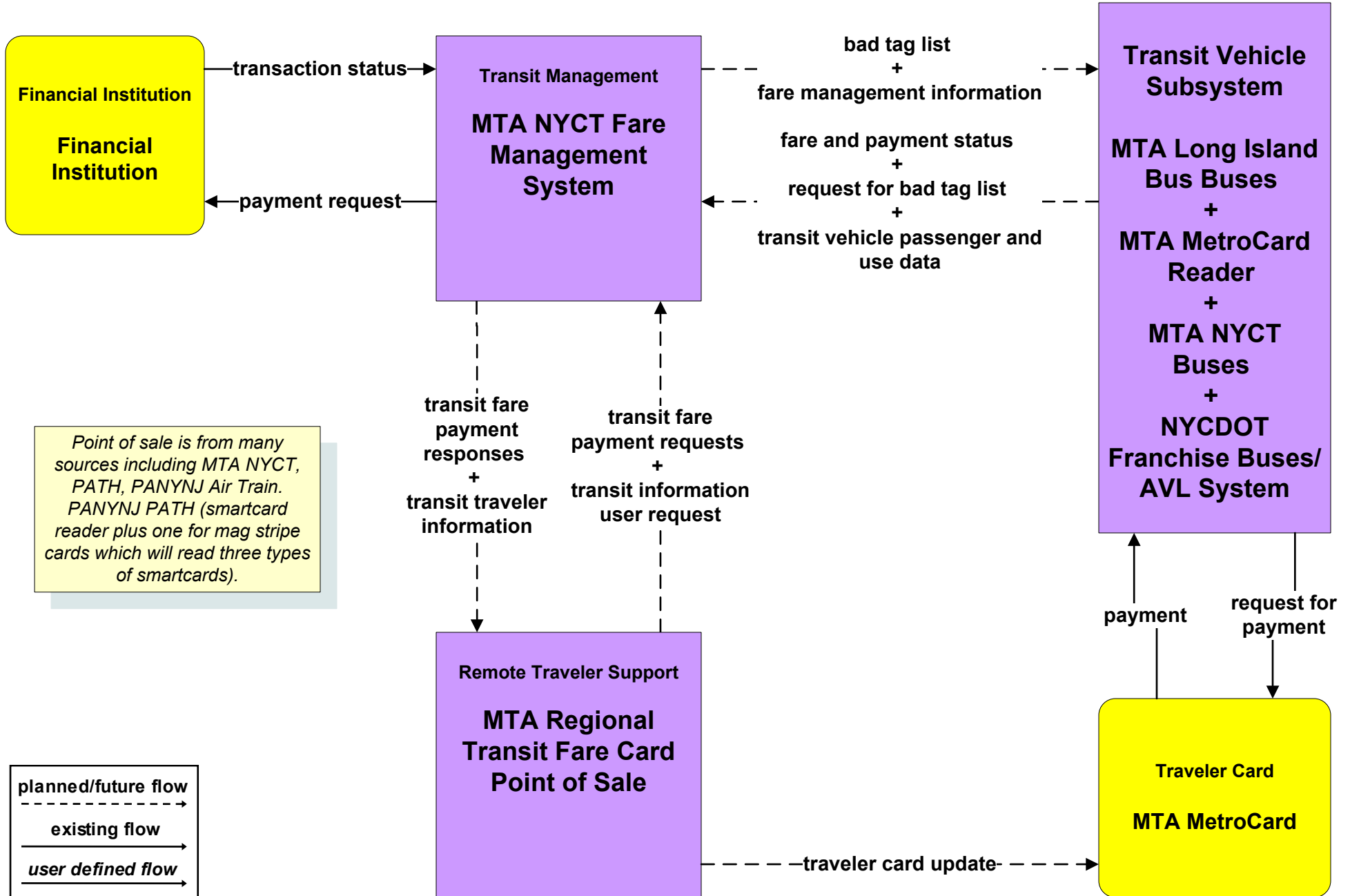
APTS3 - Demand Response Transit Operations Long Island Transit Operators



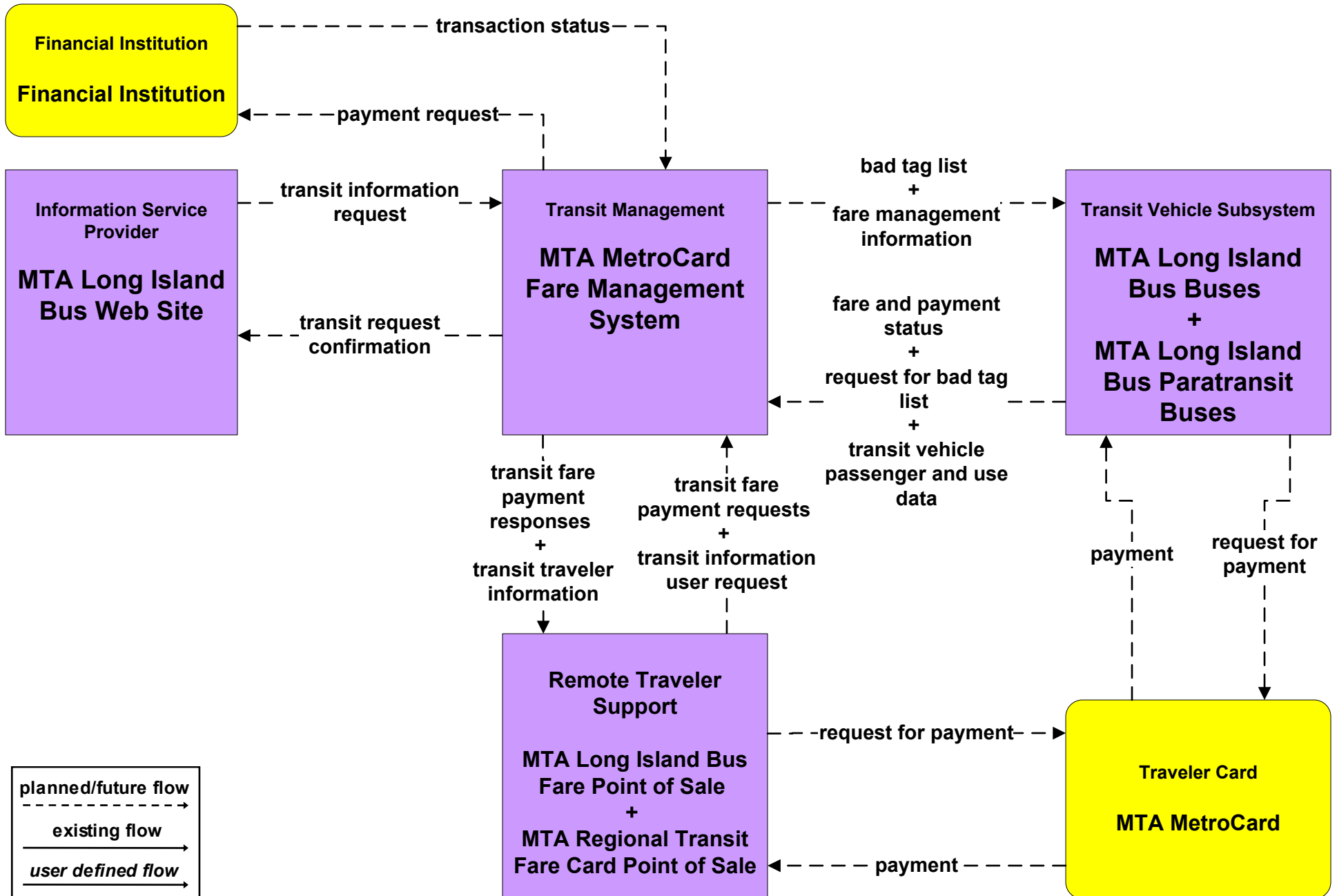
APTS3 - Demand Response Transit Operations Westchester County Bee Line



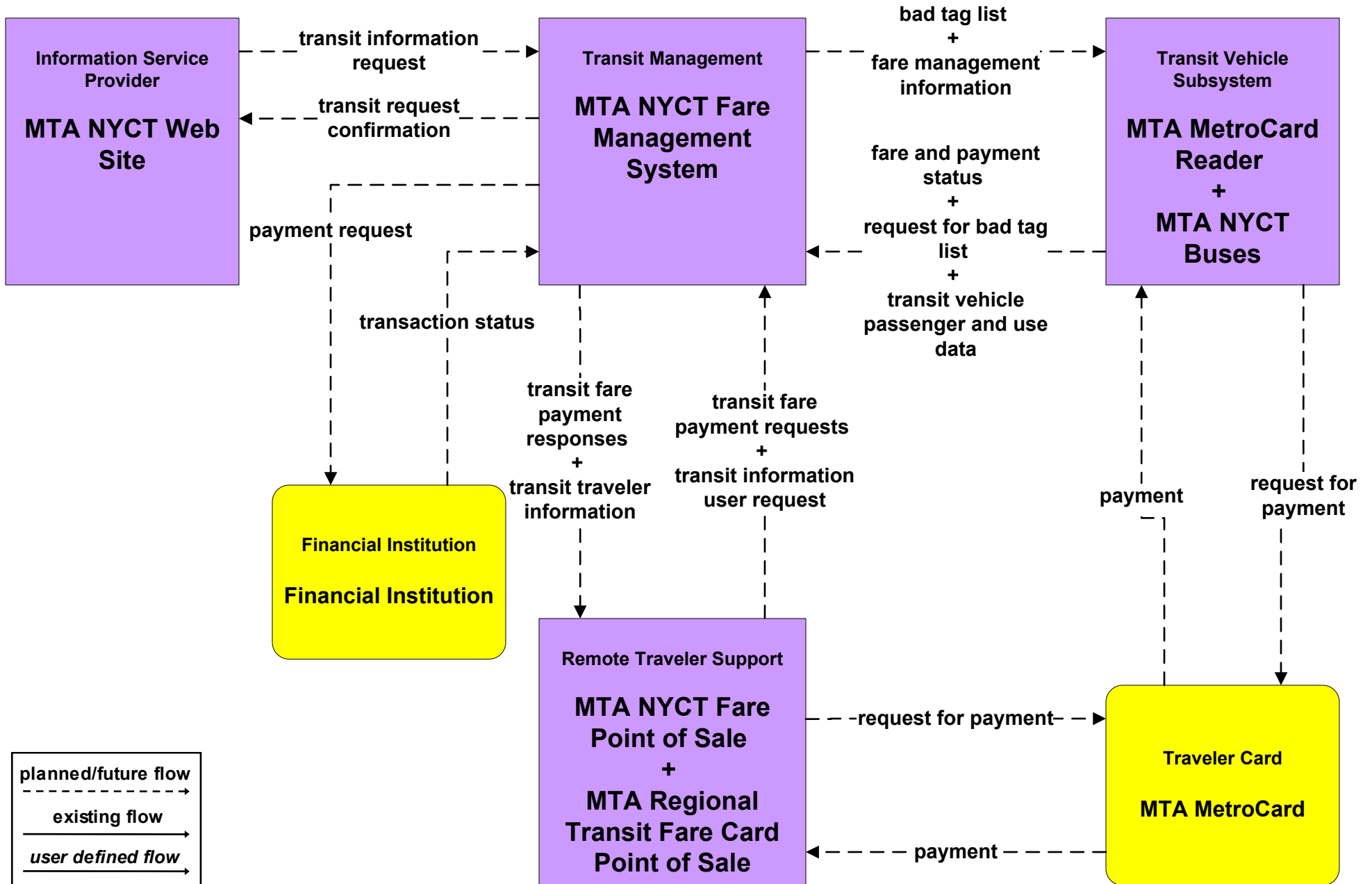
APTS4 - Transit Passenger and Fare Payment MTA MetroCard Management



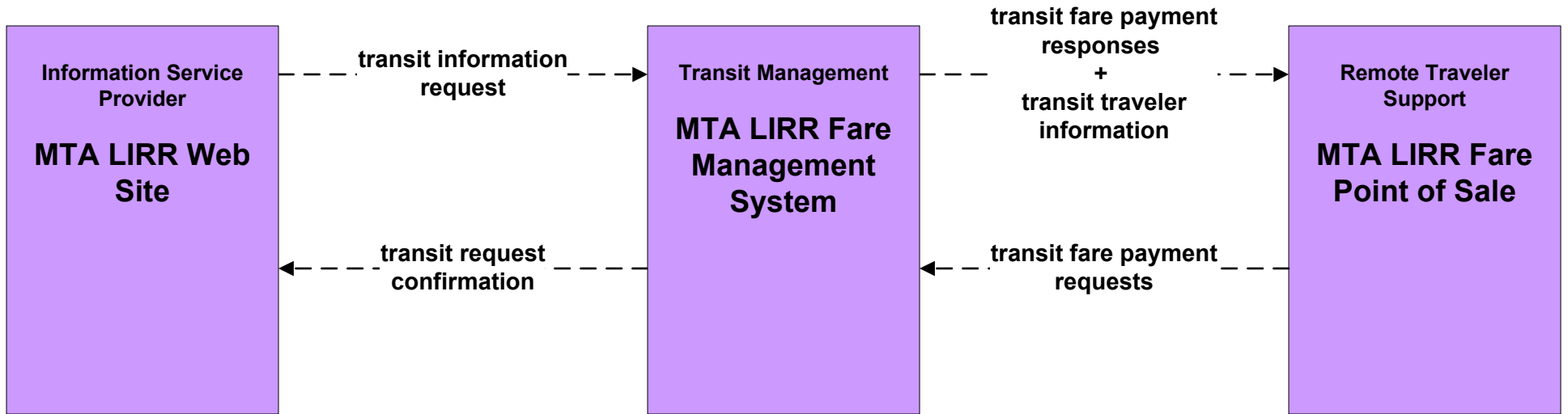
APTS4 - Transit Passenger and Fare Payment MTA Long Island Bus



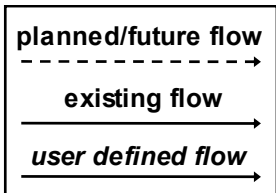
APTS4 - Transit Passenger and Fare Payment MTA NYC Transit



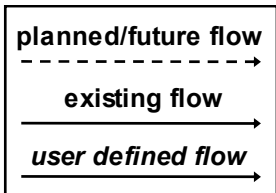
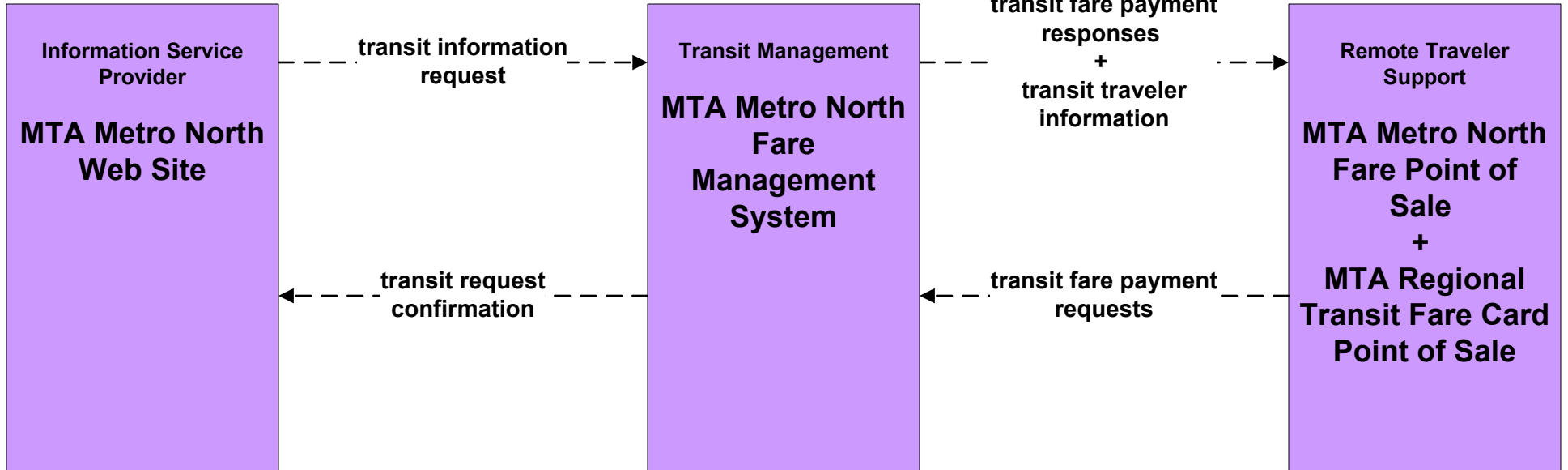
APTS4 - Transit Passenger and Fare Payment MTA Long Island Rail Road



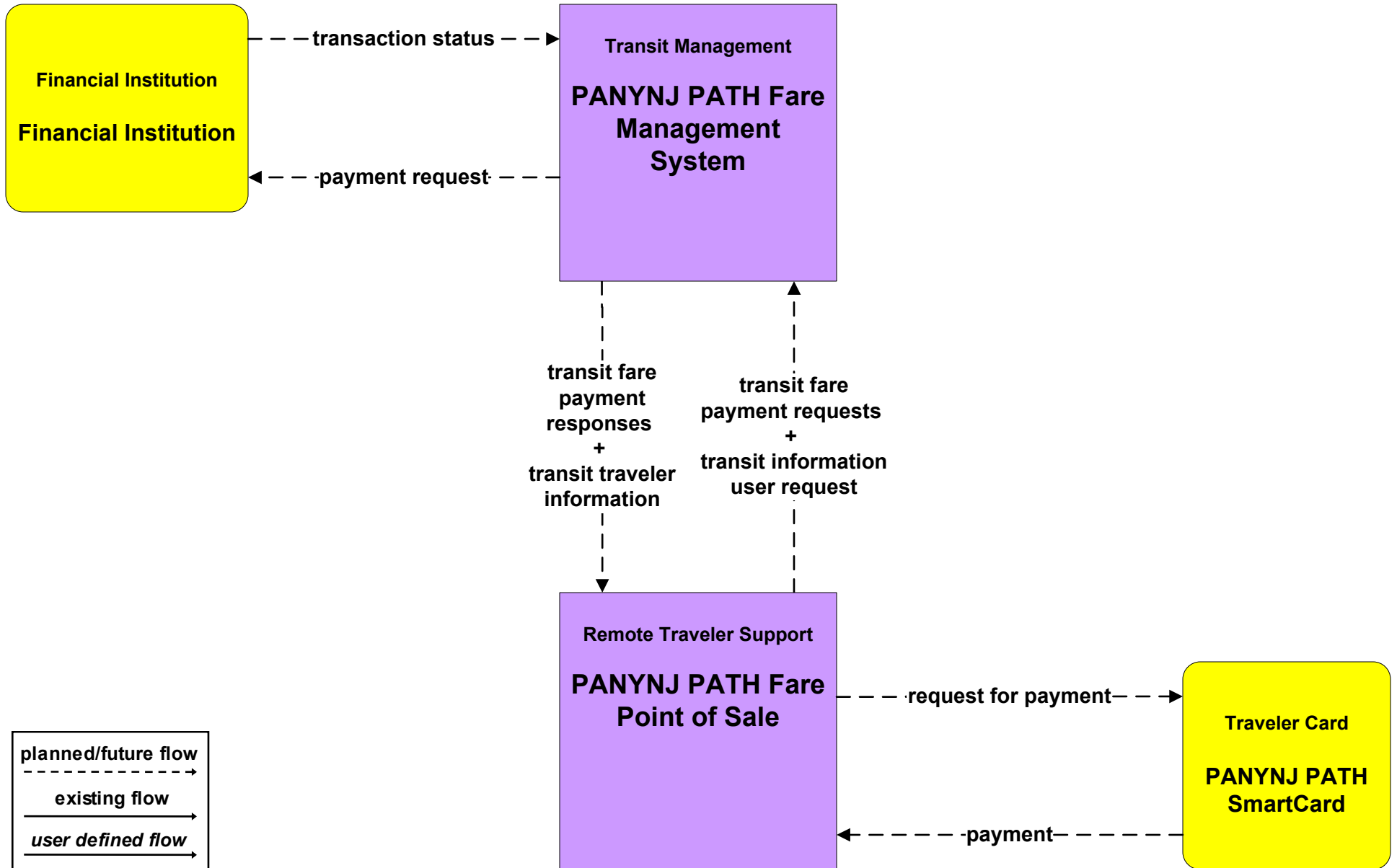
Tickets may also be purchased via the web. Tickets are sent via the mail.



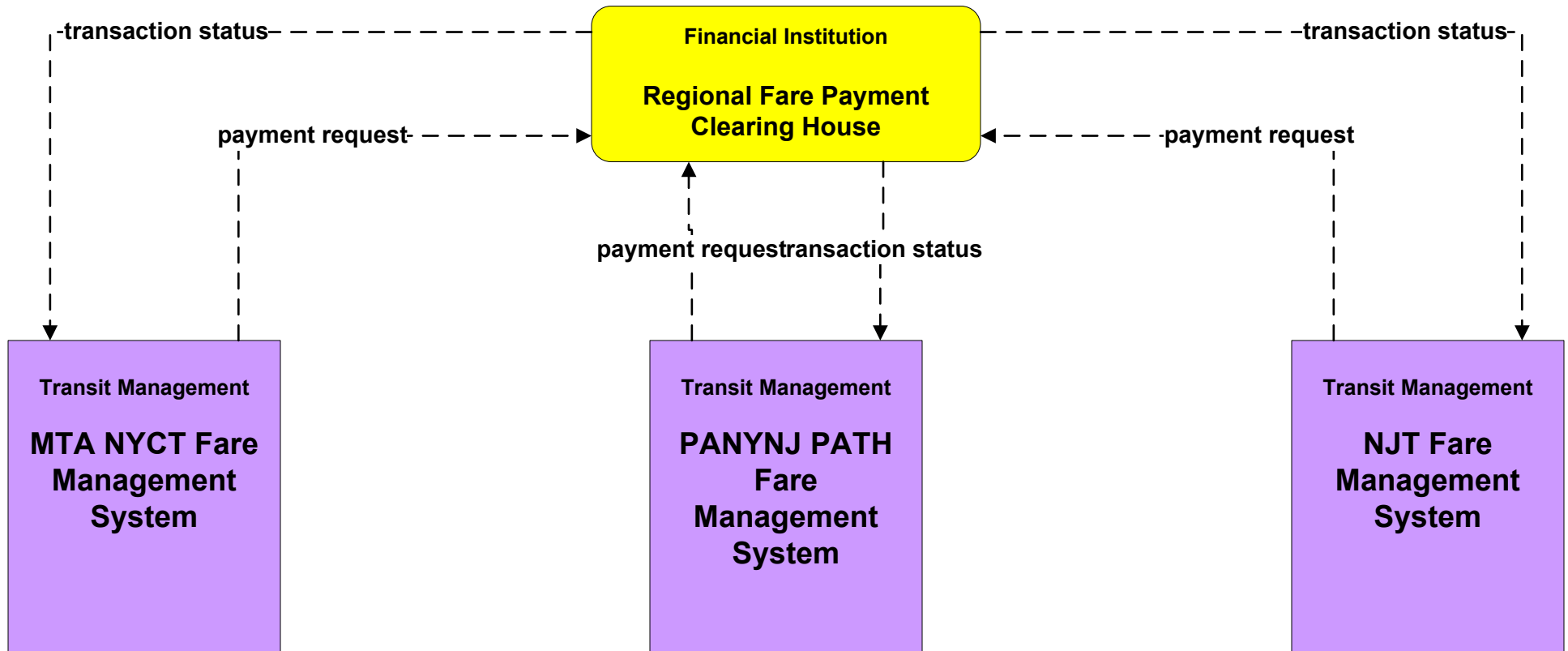
**APTS4 - Transit Passenger and Fare Payment
MTA Metro North Railroad**



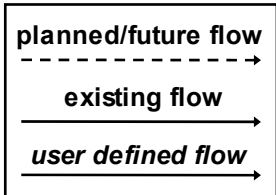
**APTS4 - Transit Passenger and Fare Payment
PANYNJ PATH Fare Administration**



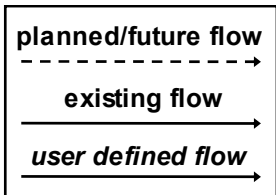
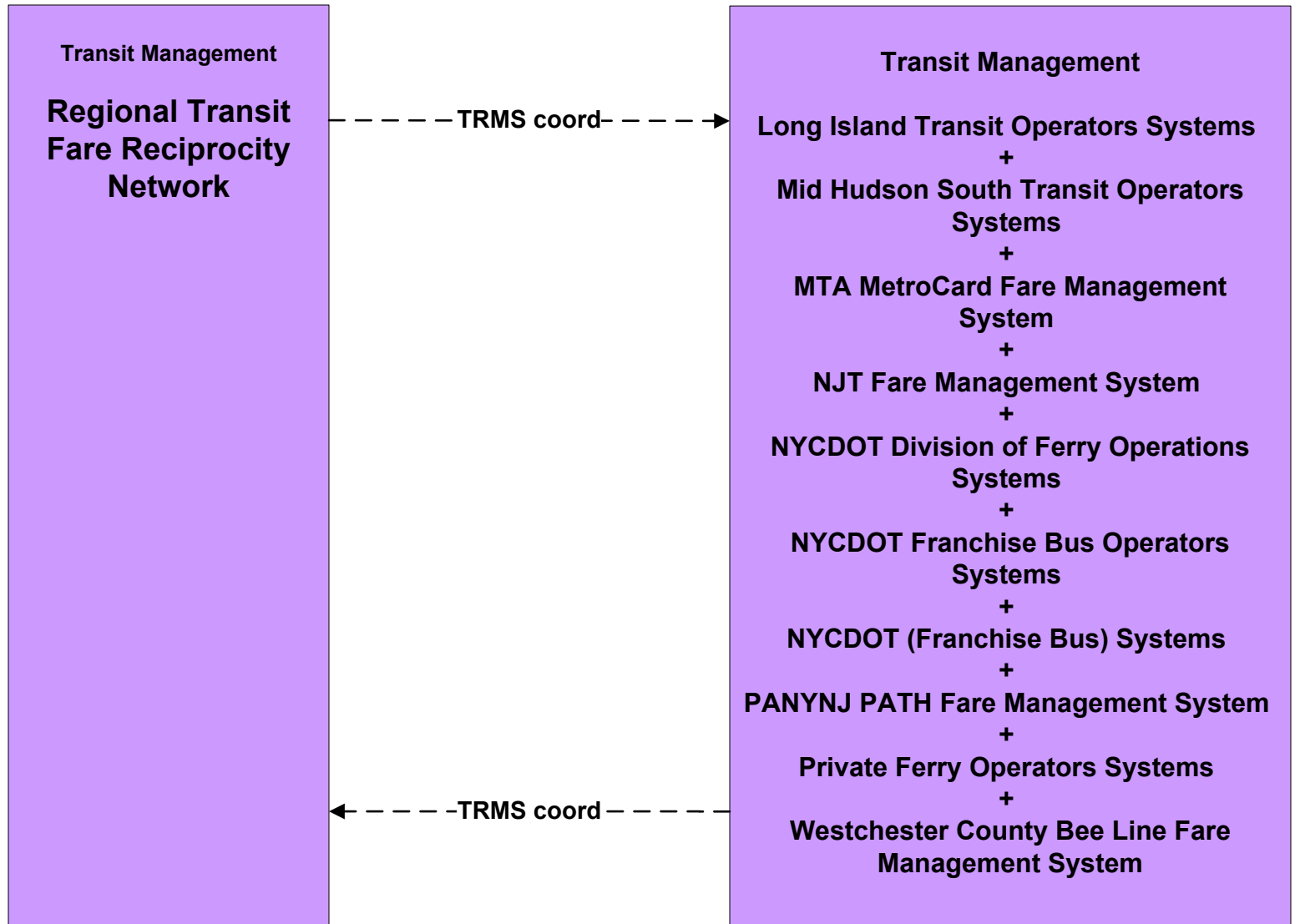
APTS4 - Transit Passenger and Fare Payment PANYNJ PATH Fare Administration



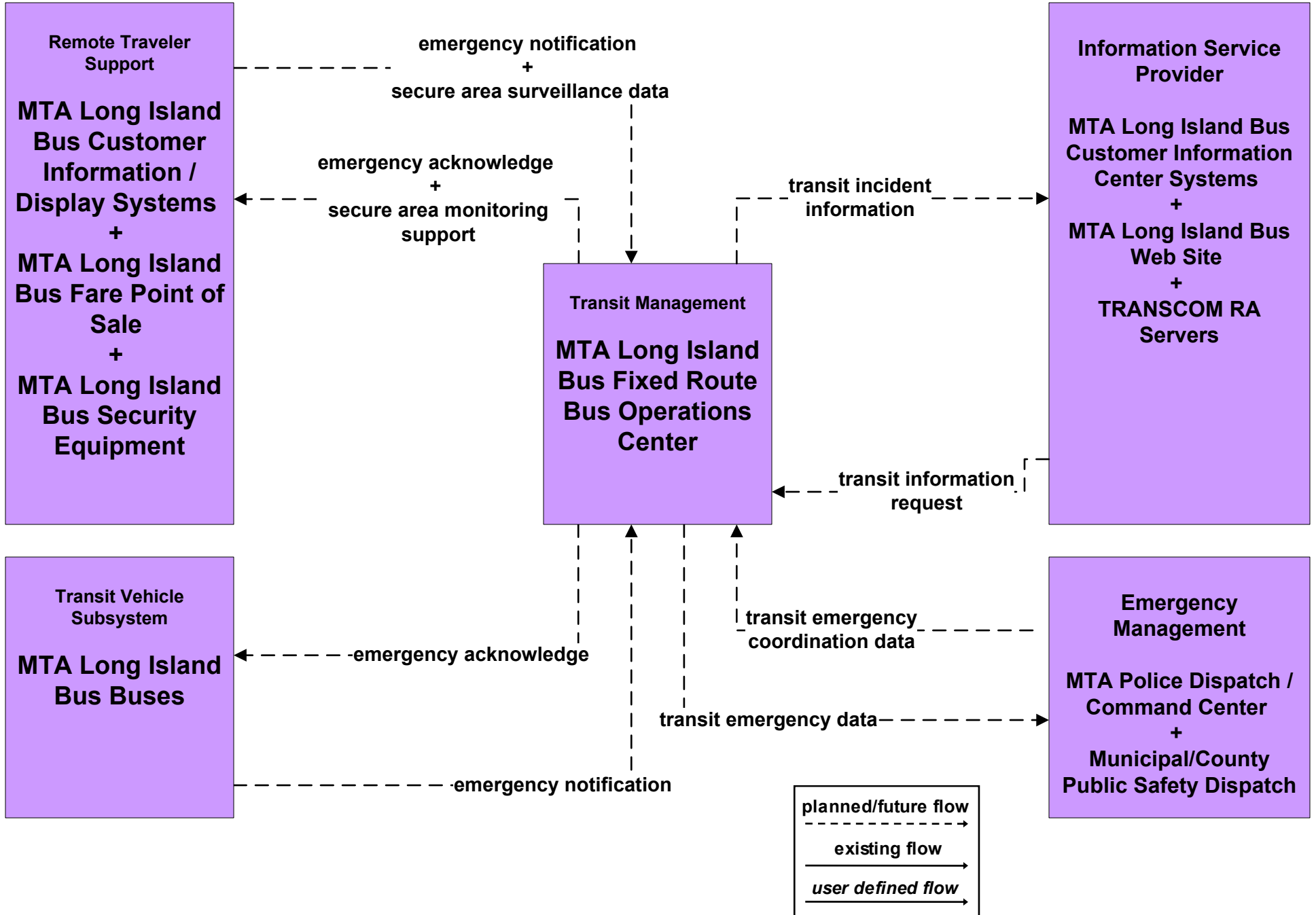
In the future, non transit use of transit fare payment media for parking, travel services, ecommerce.



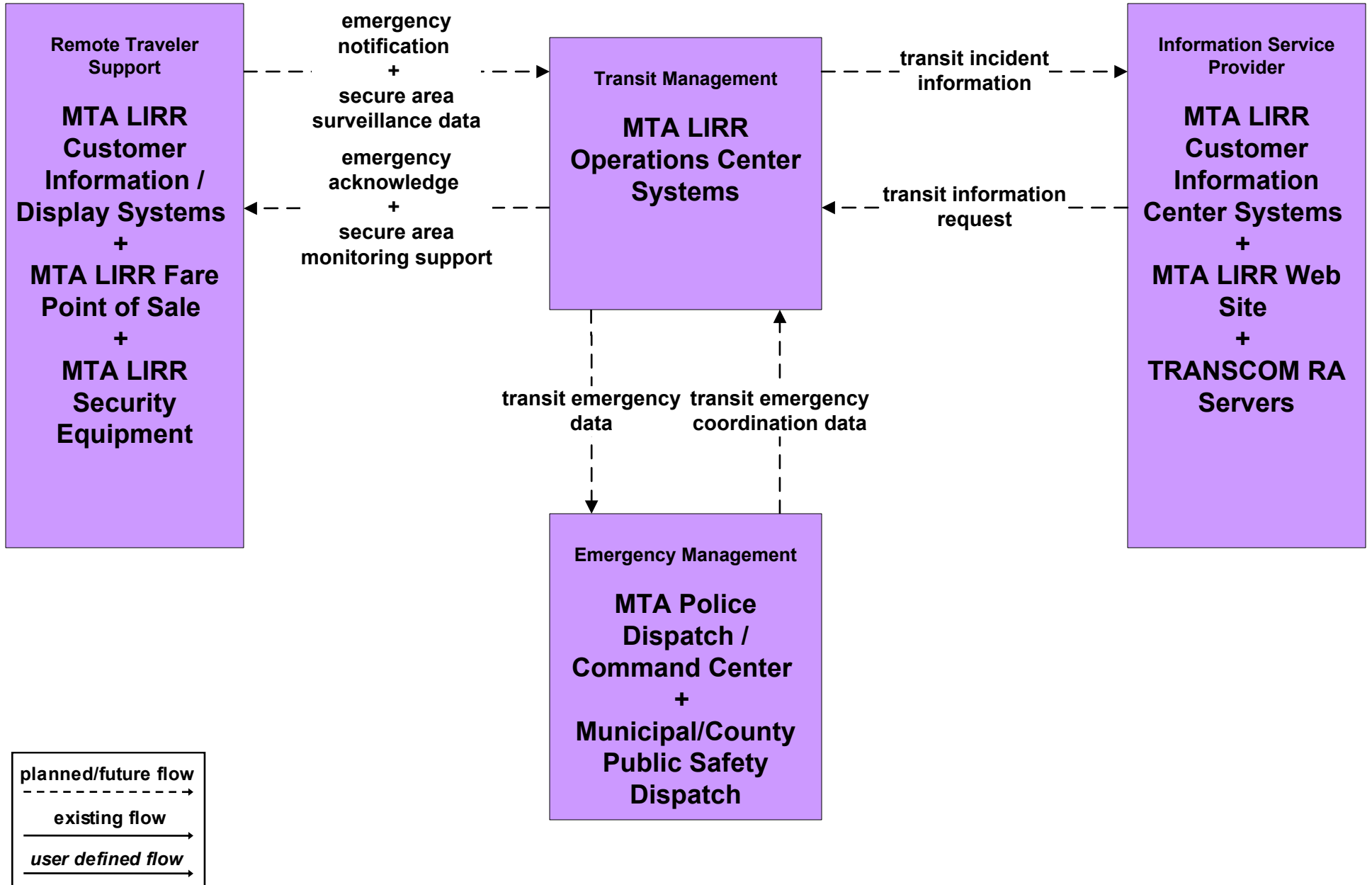
**APTS4 - Transit Passenger and Fare Payment
Regional Transit Fare Reciprocity Network (FUTURE)**



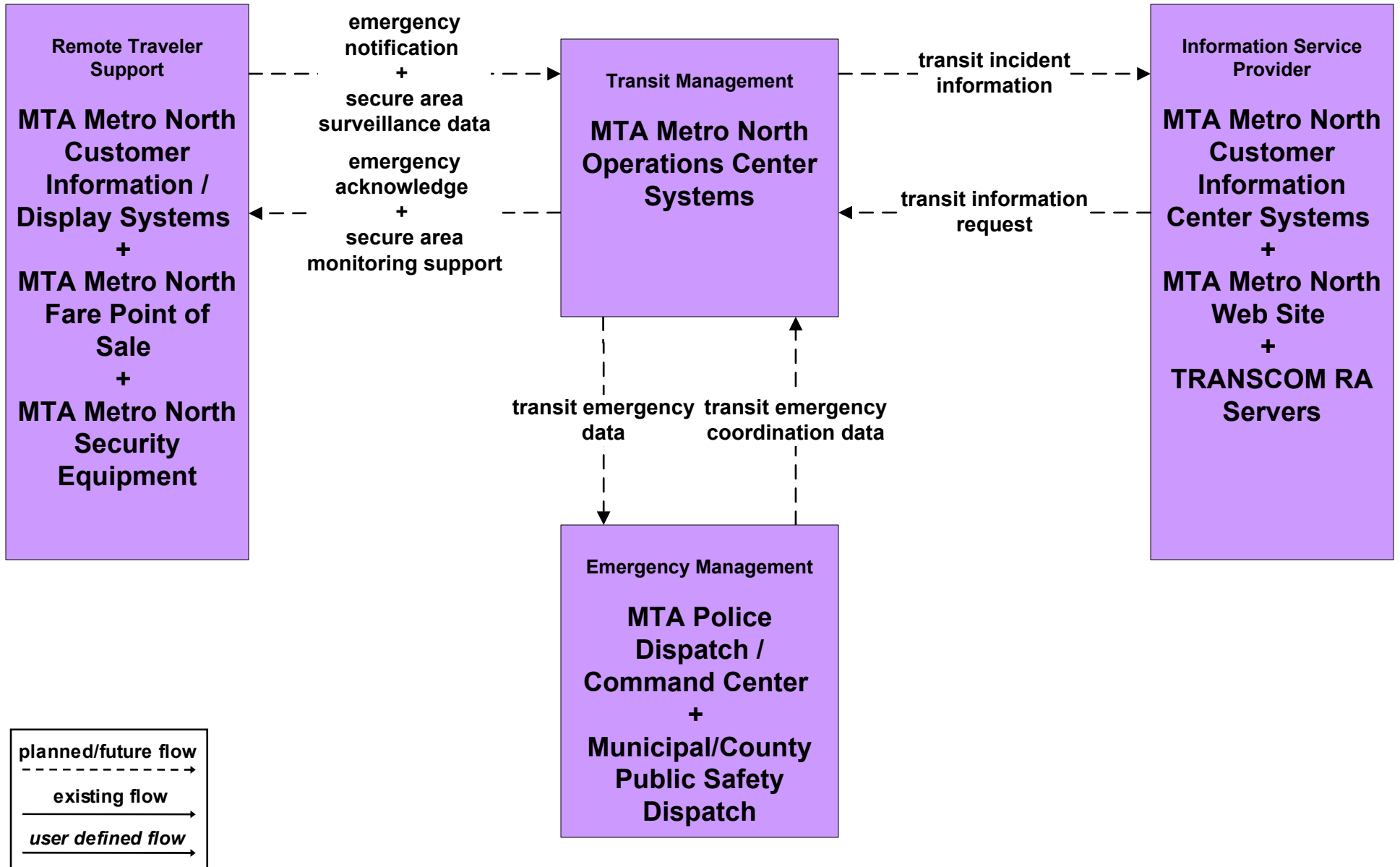
APTS5 - Transit Security MTA Long Island Bus



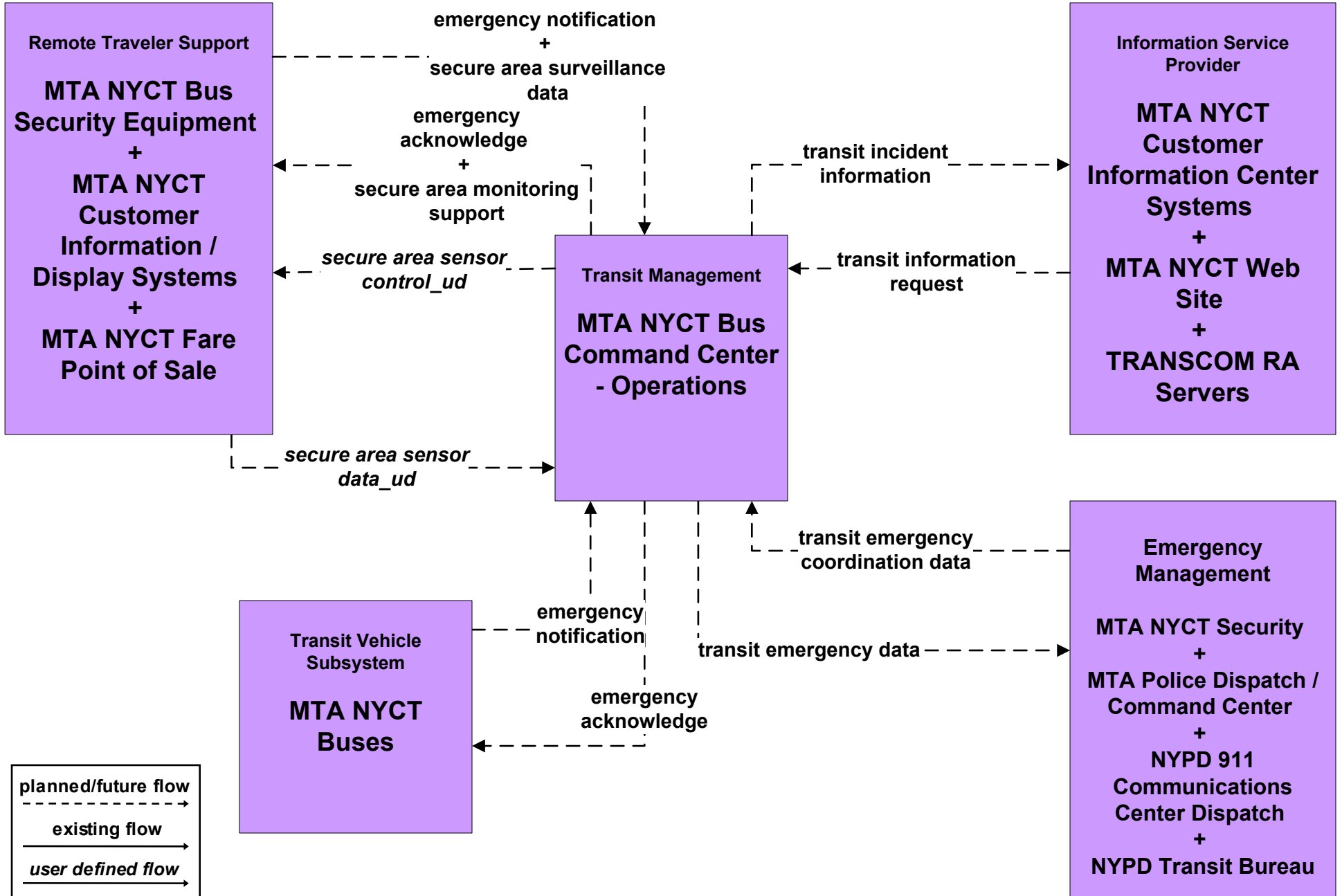
**APTS5 - Transit Security
MTA Long Island Rail Road**



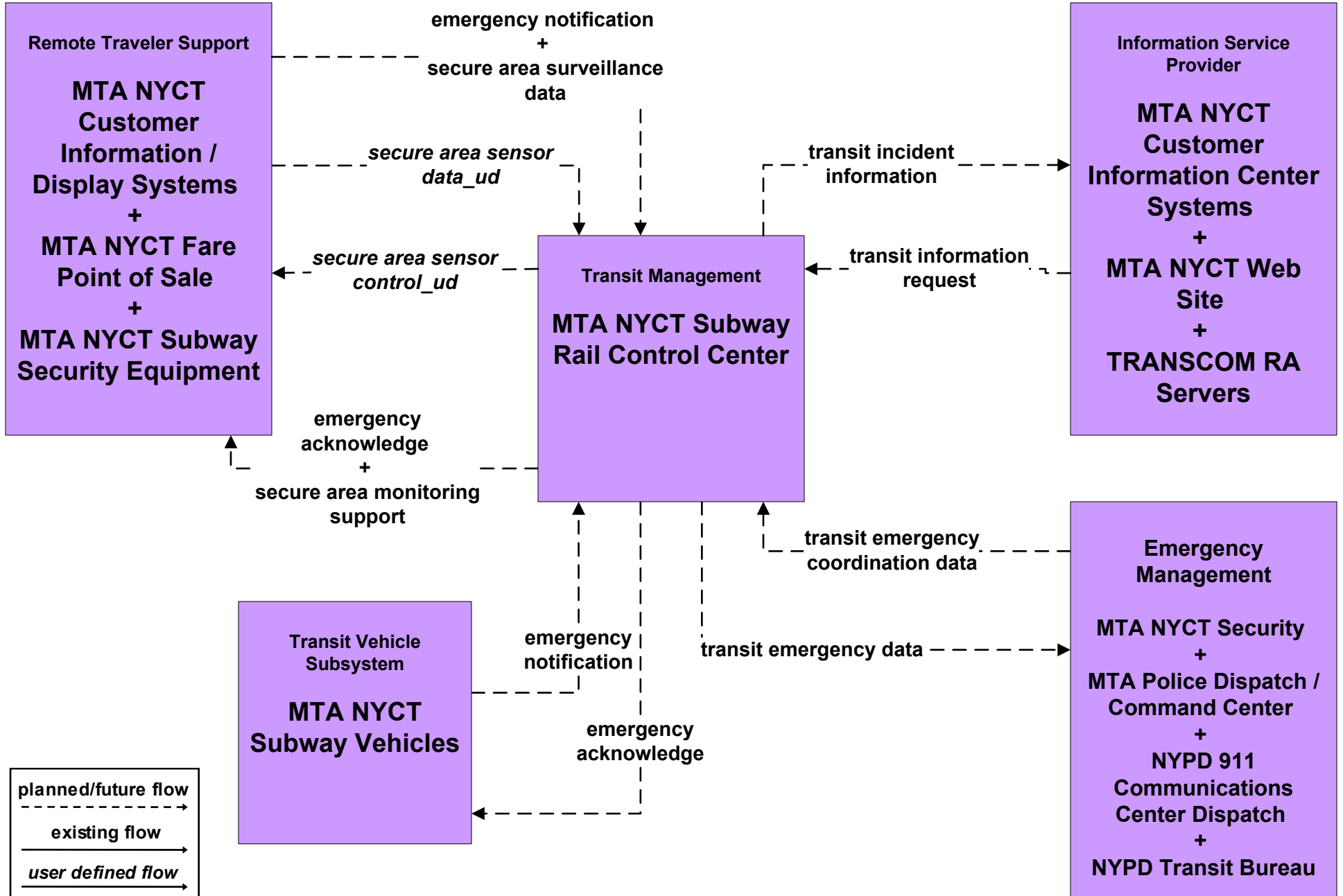
APTS5 - Transit Security MTA Metro North Railroad



APTS5 - Transit Security MTA NYC Transit Bus

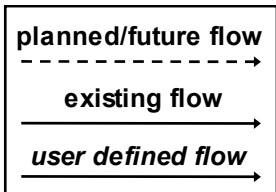
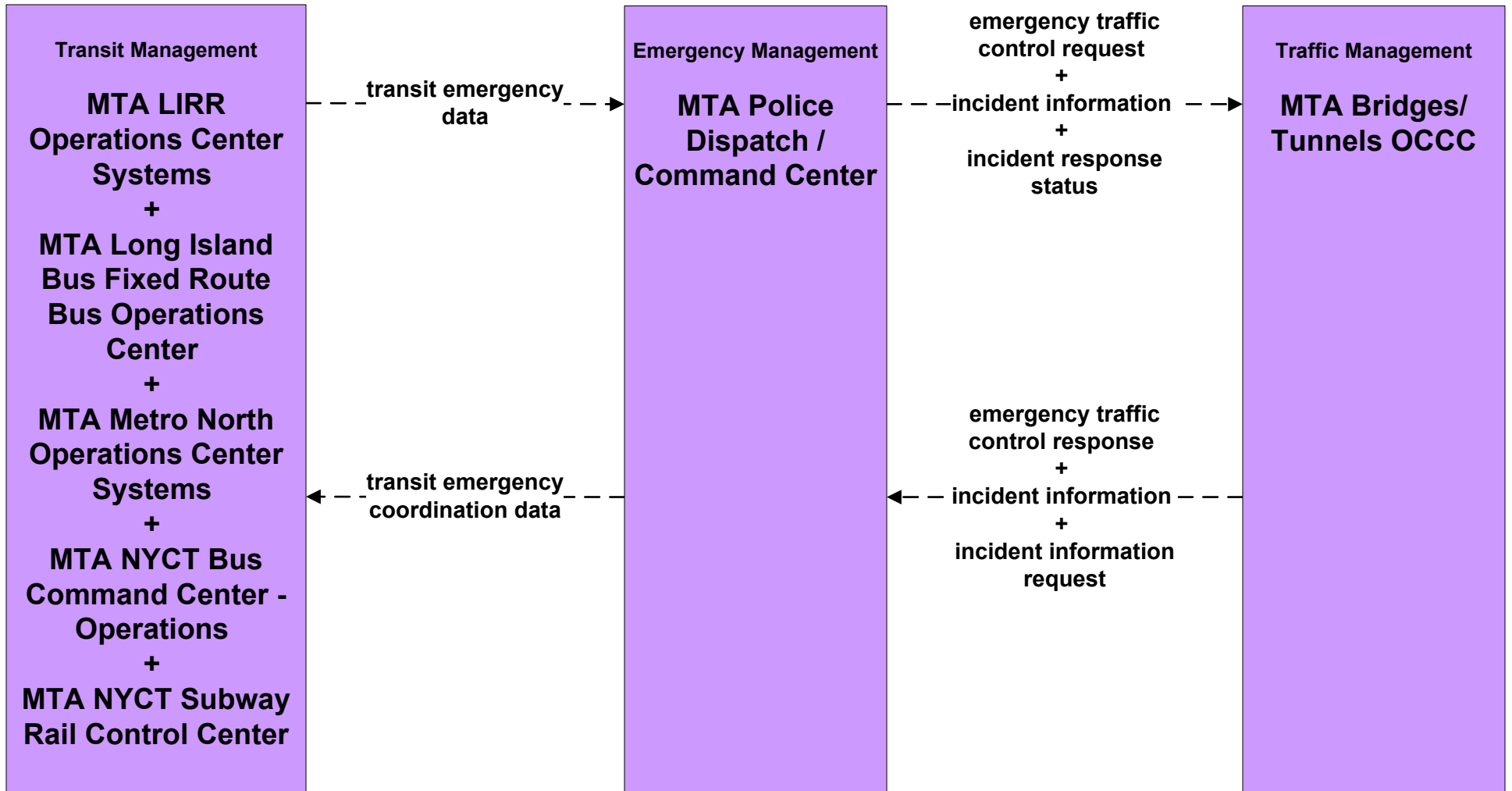


APTS5 - Transit Security MTA NYC Transit Subway

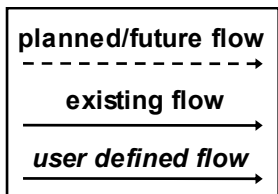
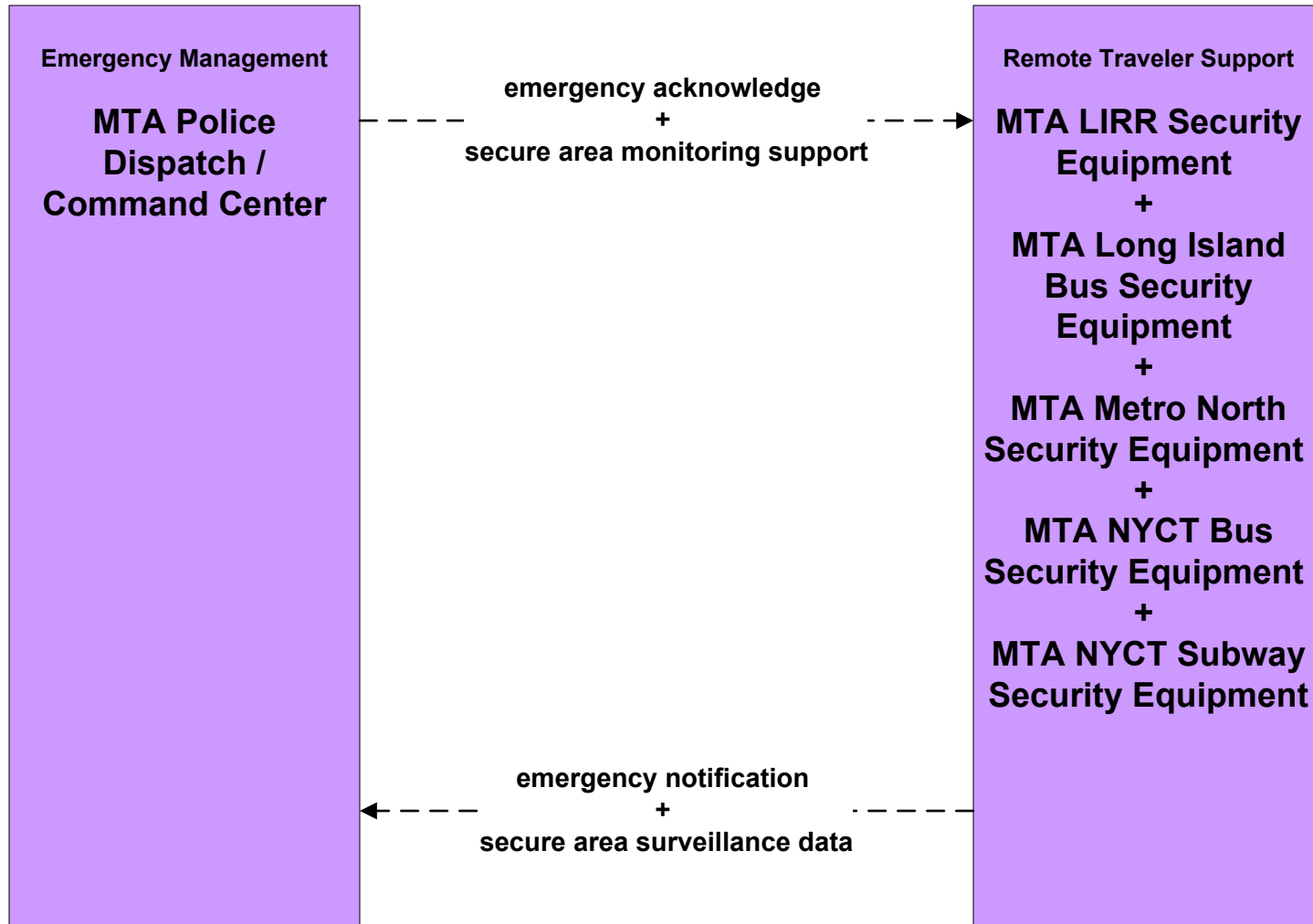


APTS5 - Transit Security

MTA Police Dispatch / Command Center to Other MTA Command/Control Centers (1 of 3)

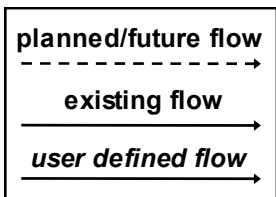
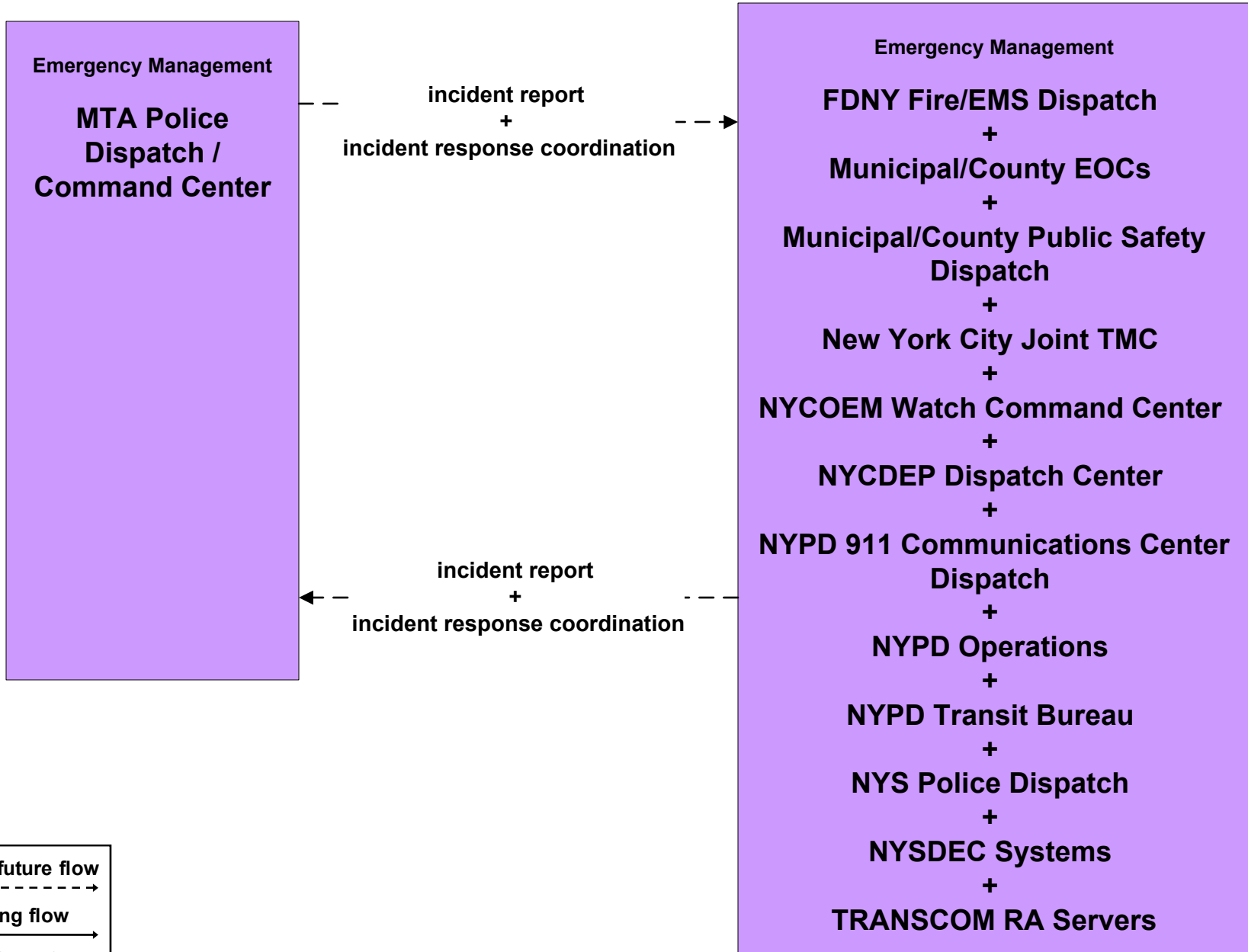


APTS5 - Transit Security
MTA Police Dispatch / Command Center - Security Equipment (2 of 3)

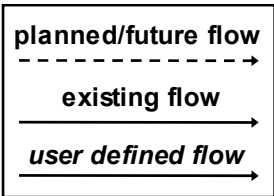
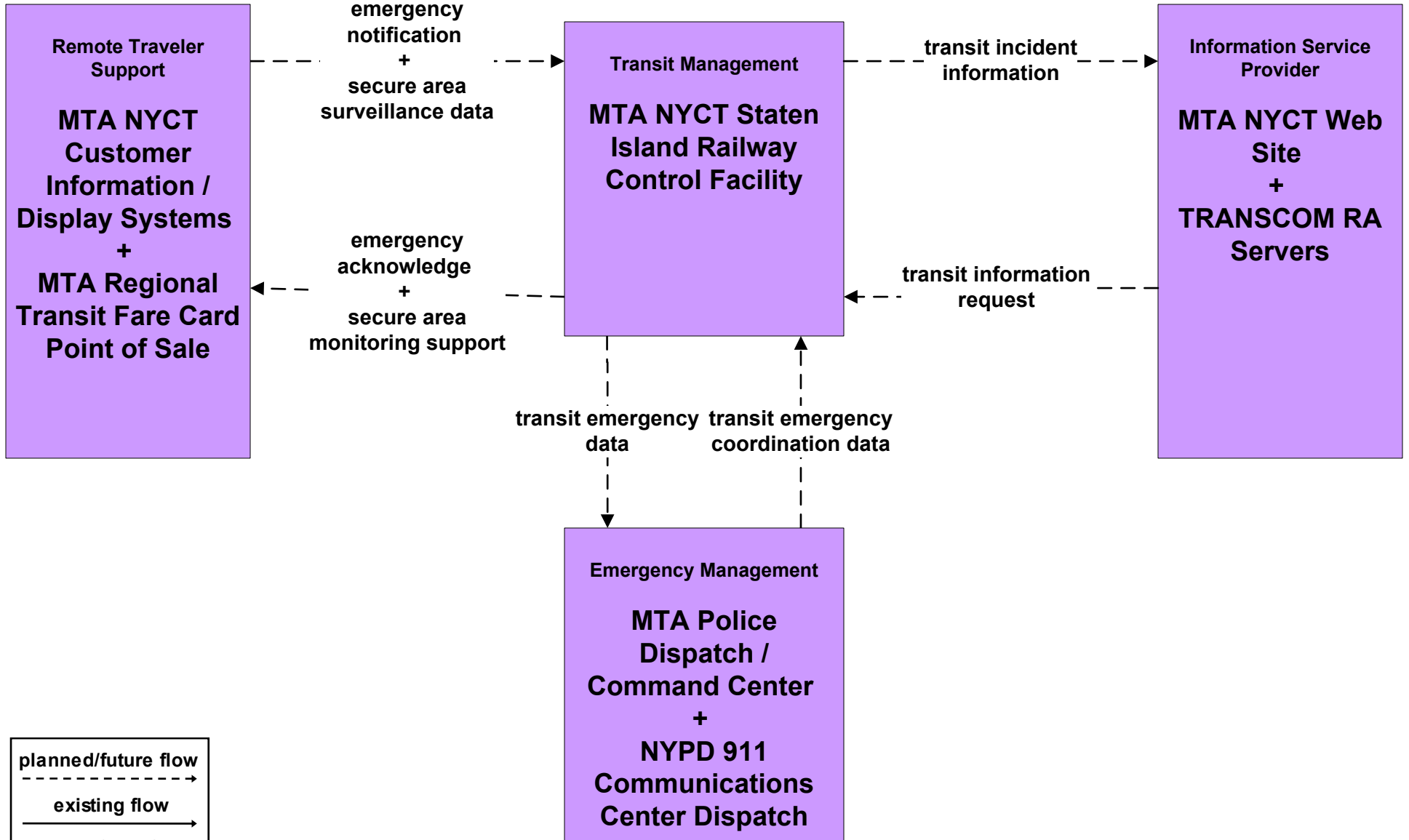


APTS5 - Transit Security

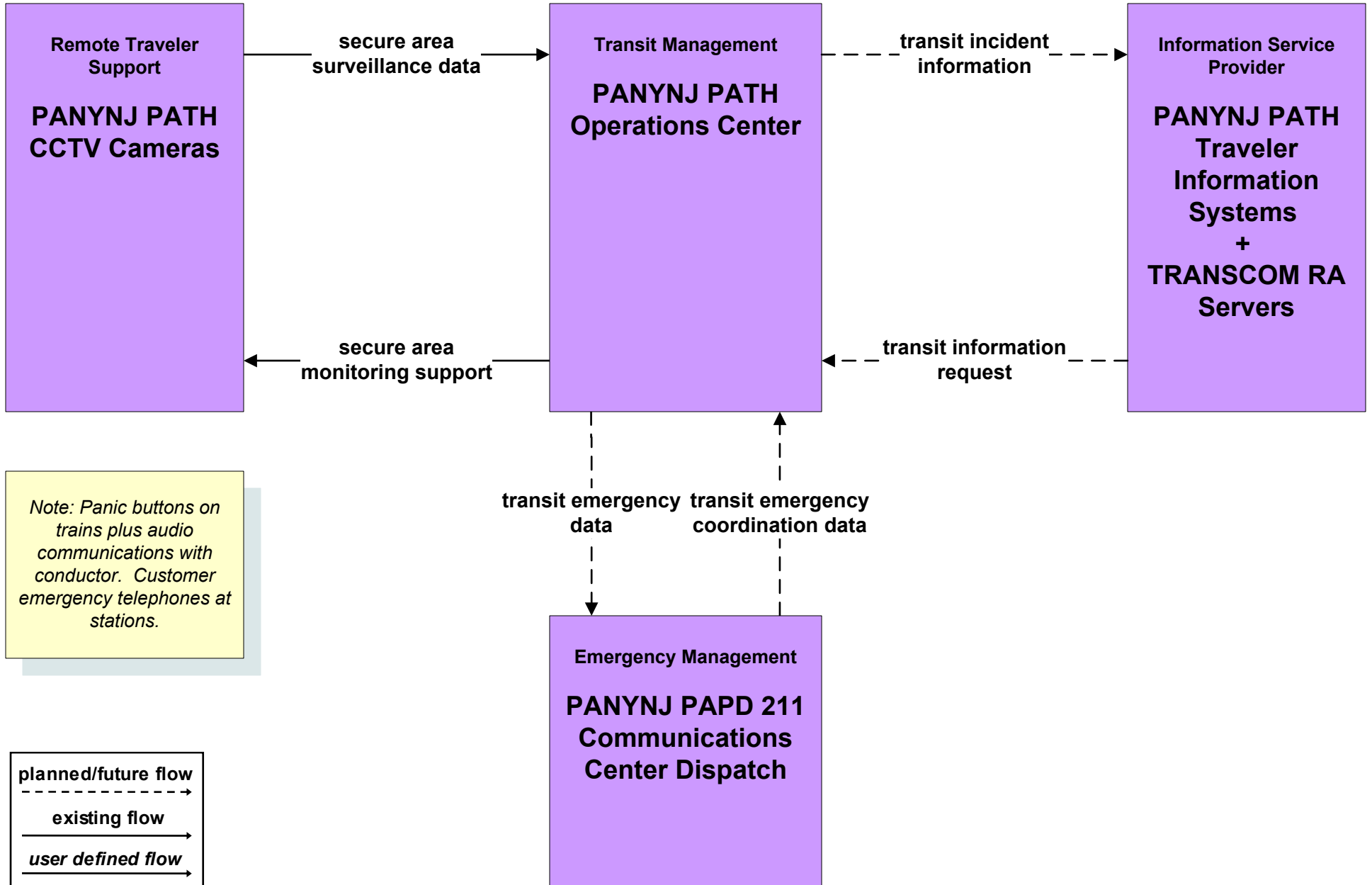
MTA Police Dispatch / Command Center to Other Emergency Management Centers (3 of 3)



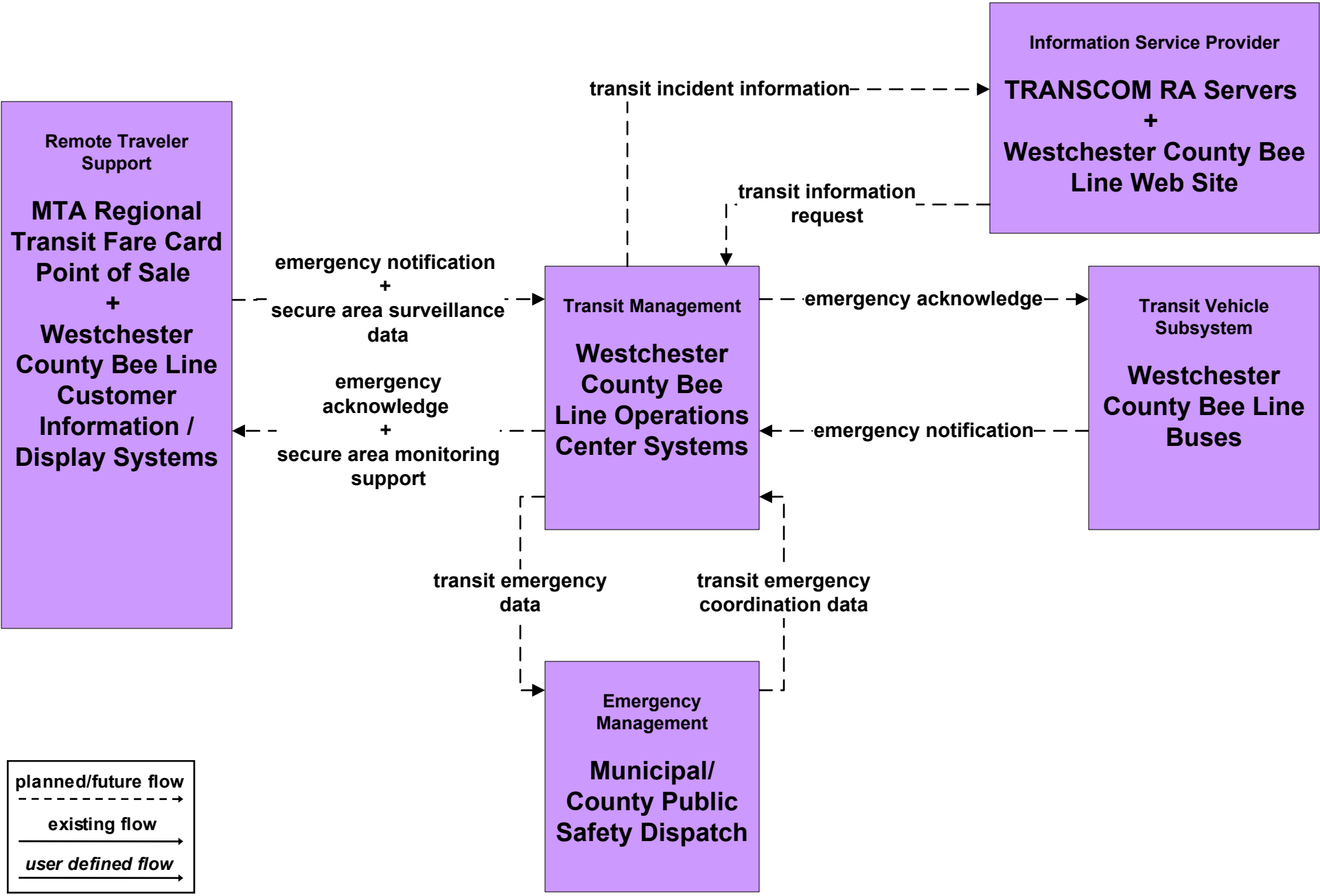
APTS5 - Transit Security MTA NYCT Staten Island Railway



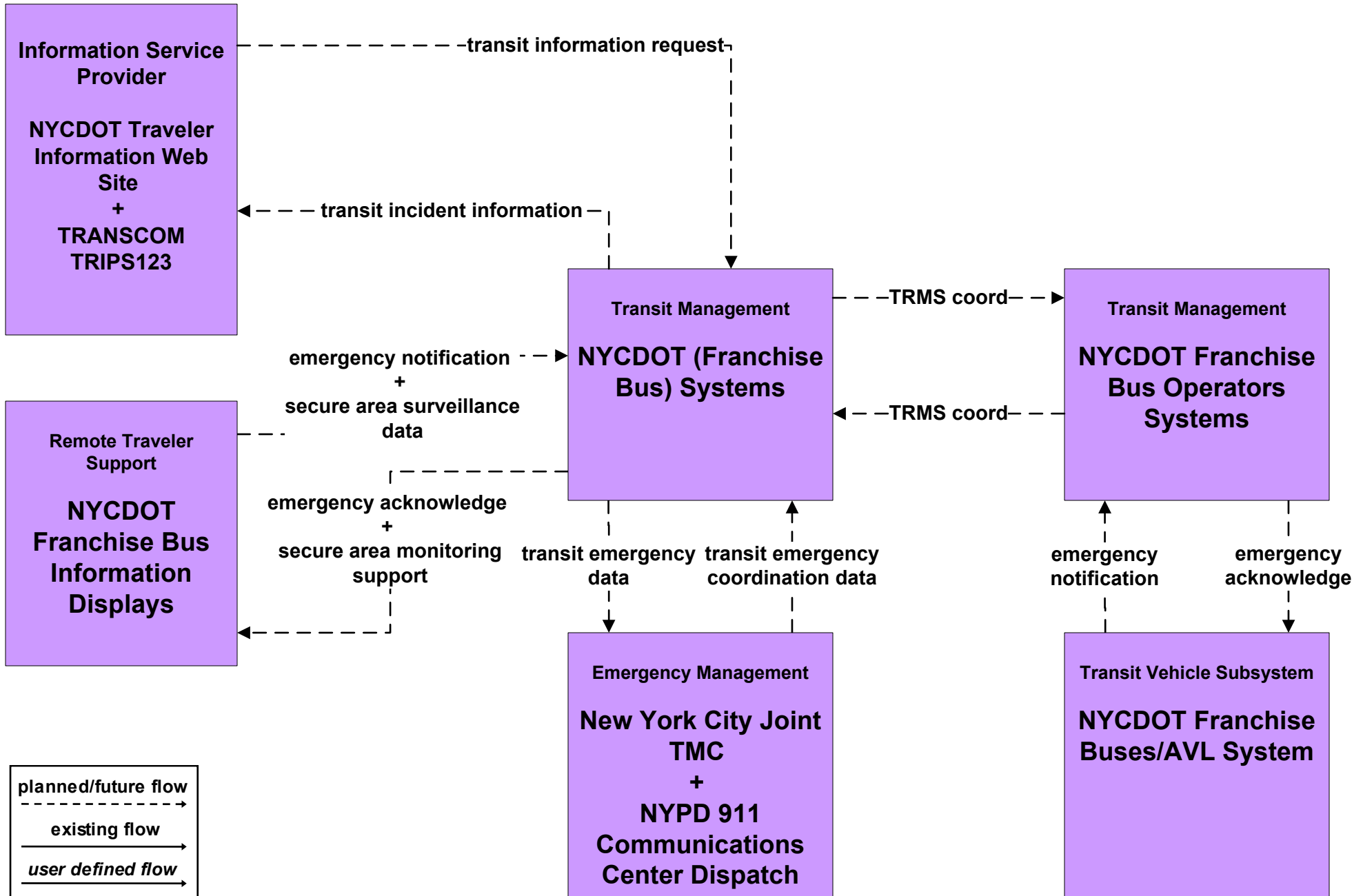
APTS5 - Transit Security PANYNJ PATH



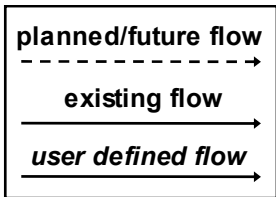
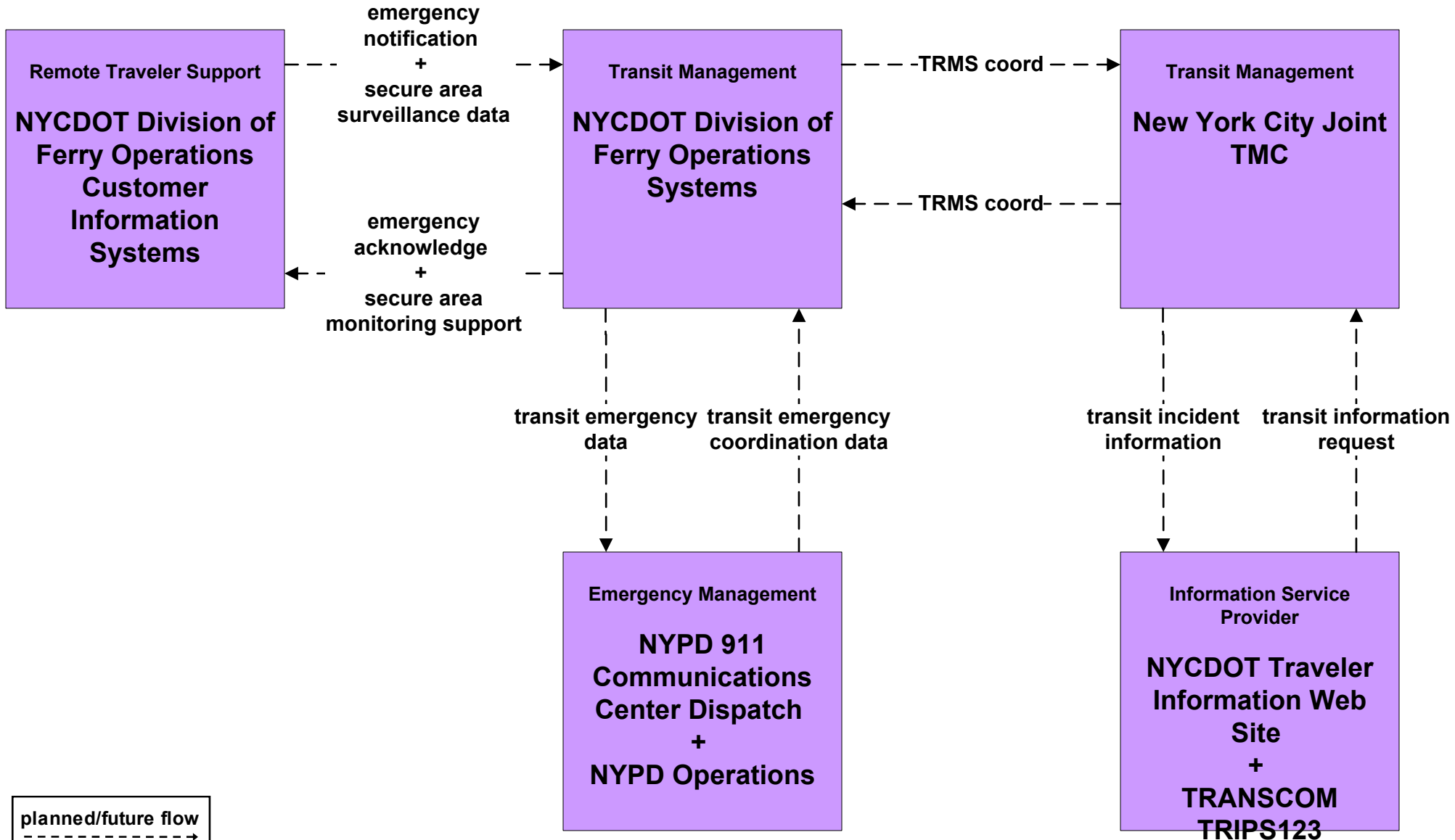
APTS5 - Transit Security Westchester County Bee Line



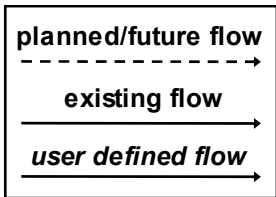
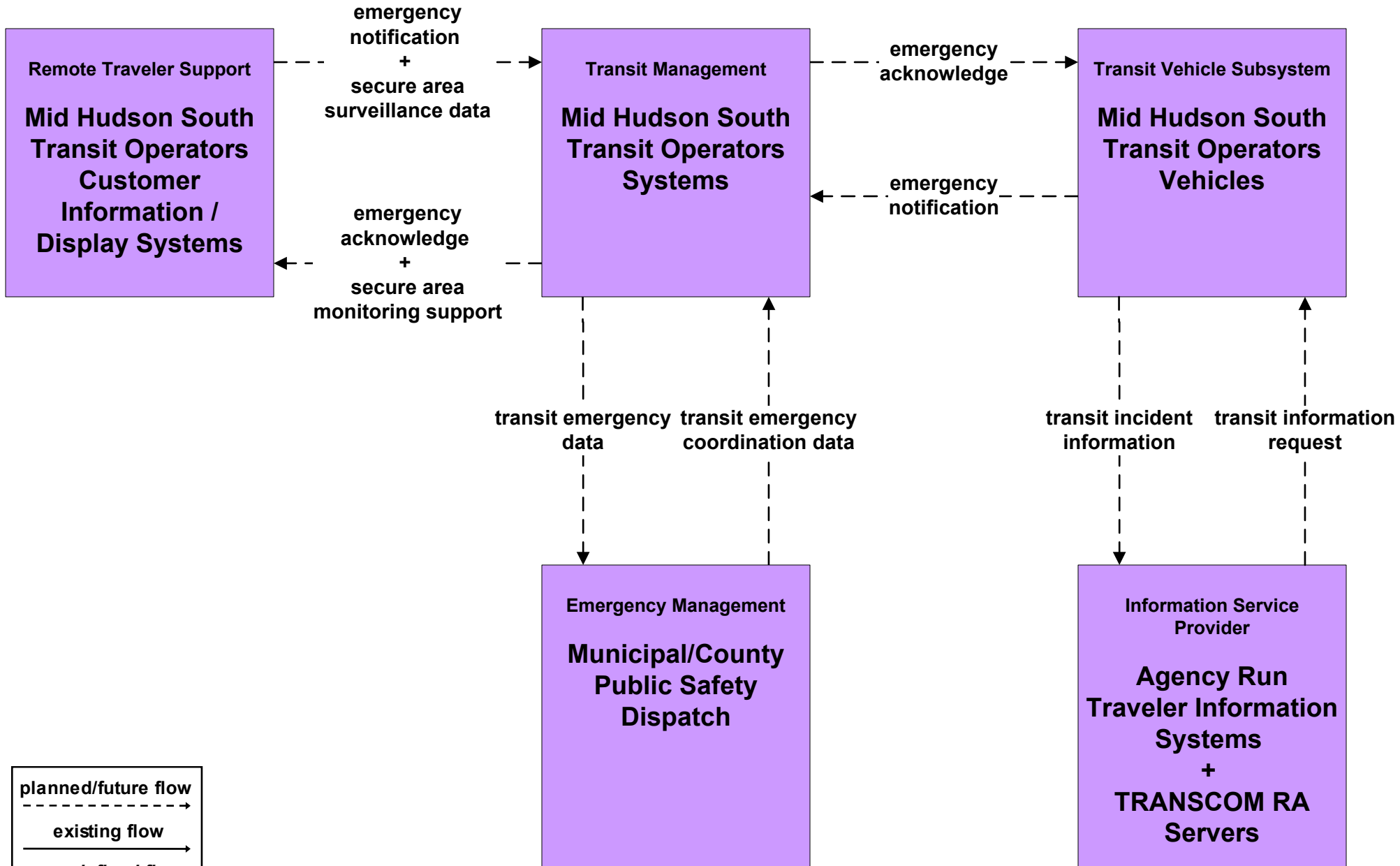
APTS5 - Transit Security NYCDOT Franchise Buses



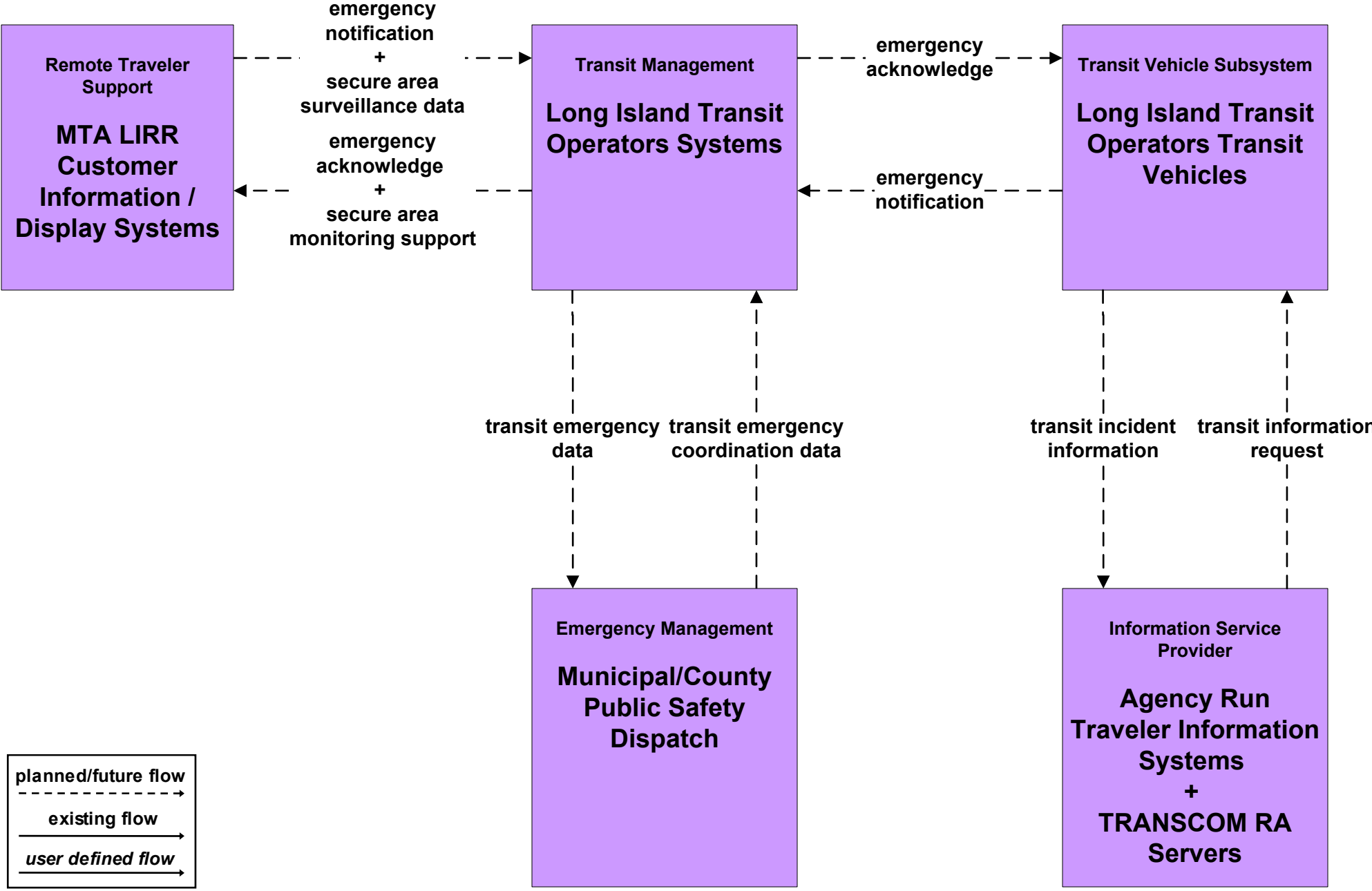
APTS5 - Transit Security
NYCDOT Division of Ferry Operations



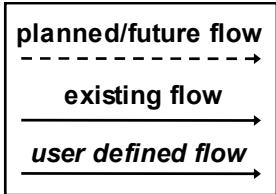
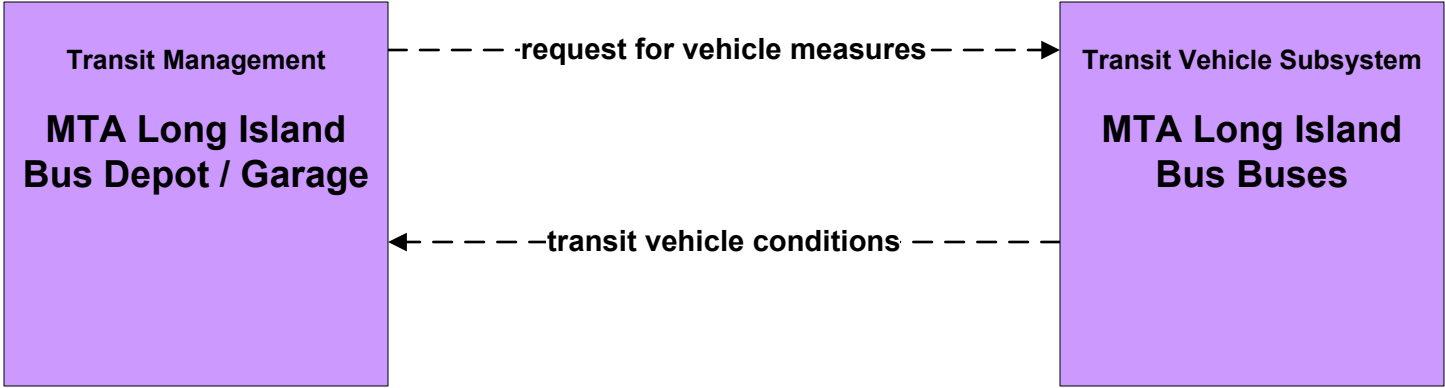
**APTS5 - Transit Security
Mid Hudson South Transit Operators**



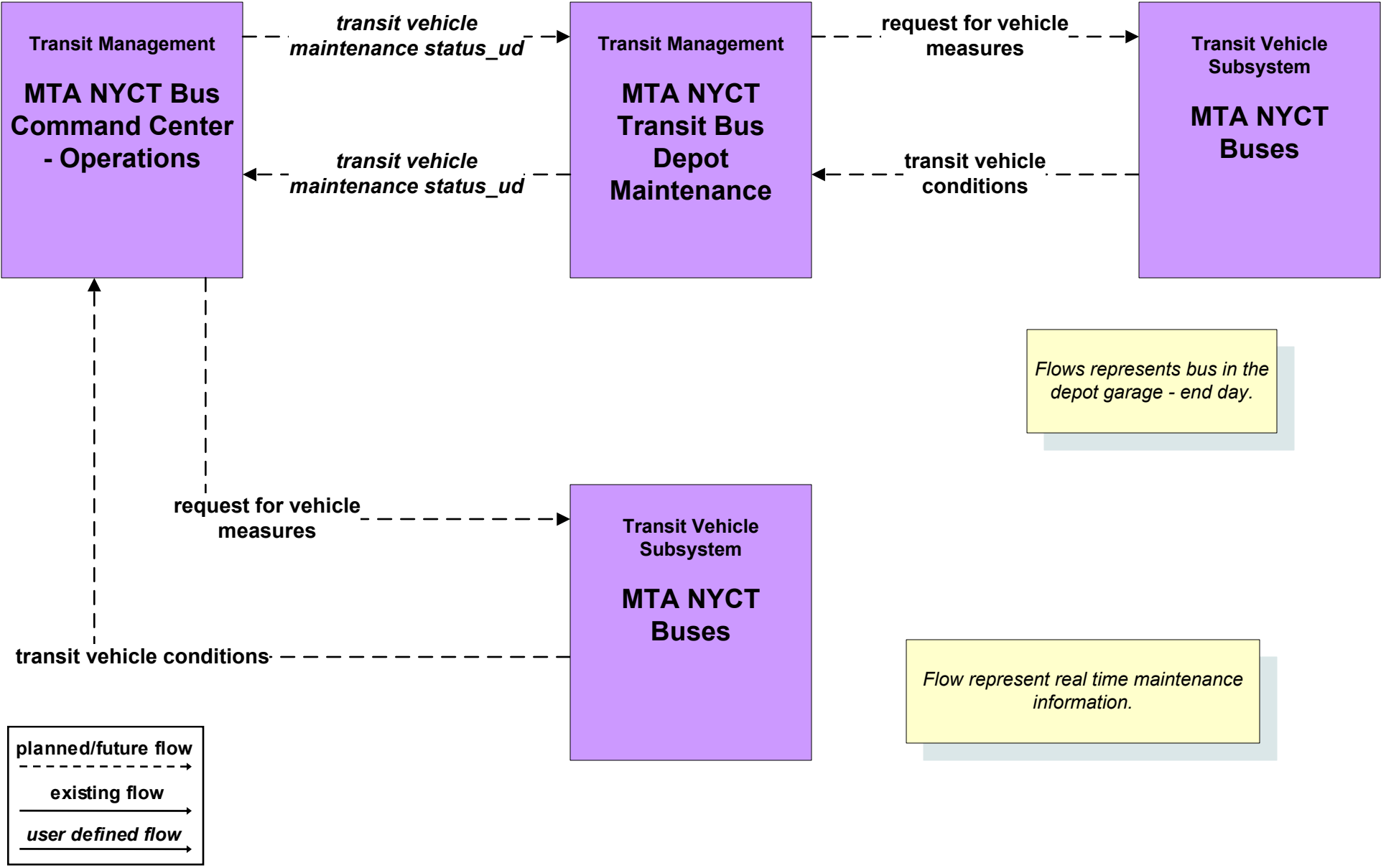
**APTS5 - Transit Security
Long Island Transit Operators**



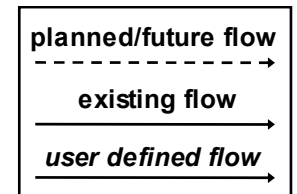
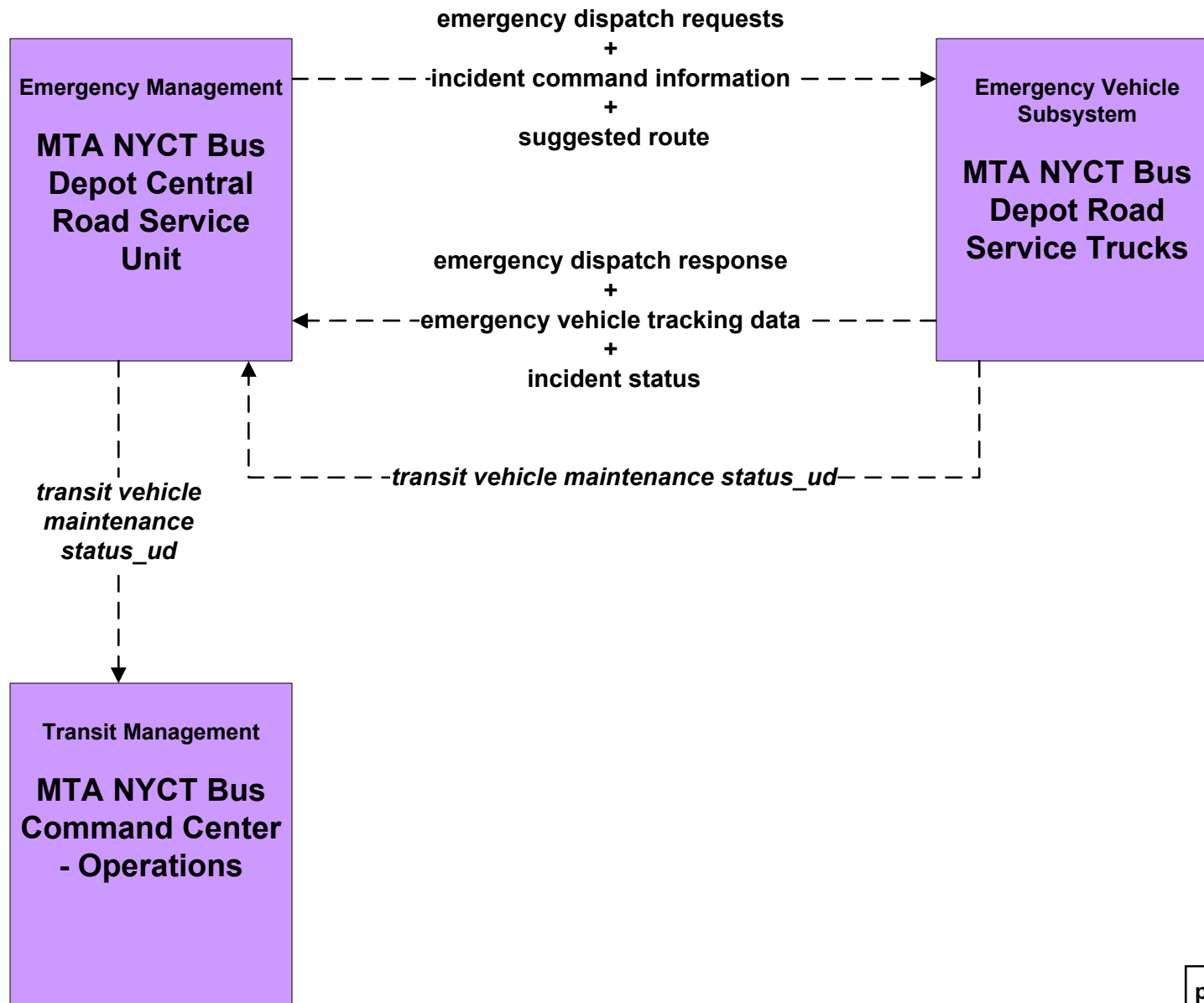
**APTS6 - Transit Vehicle Maintenance
MTA Long Island Bus**



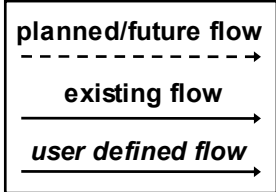
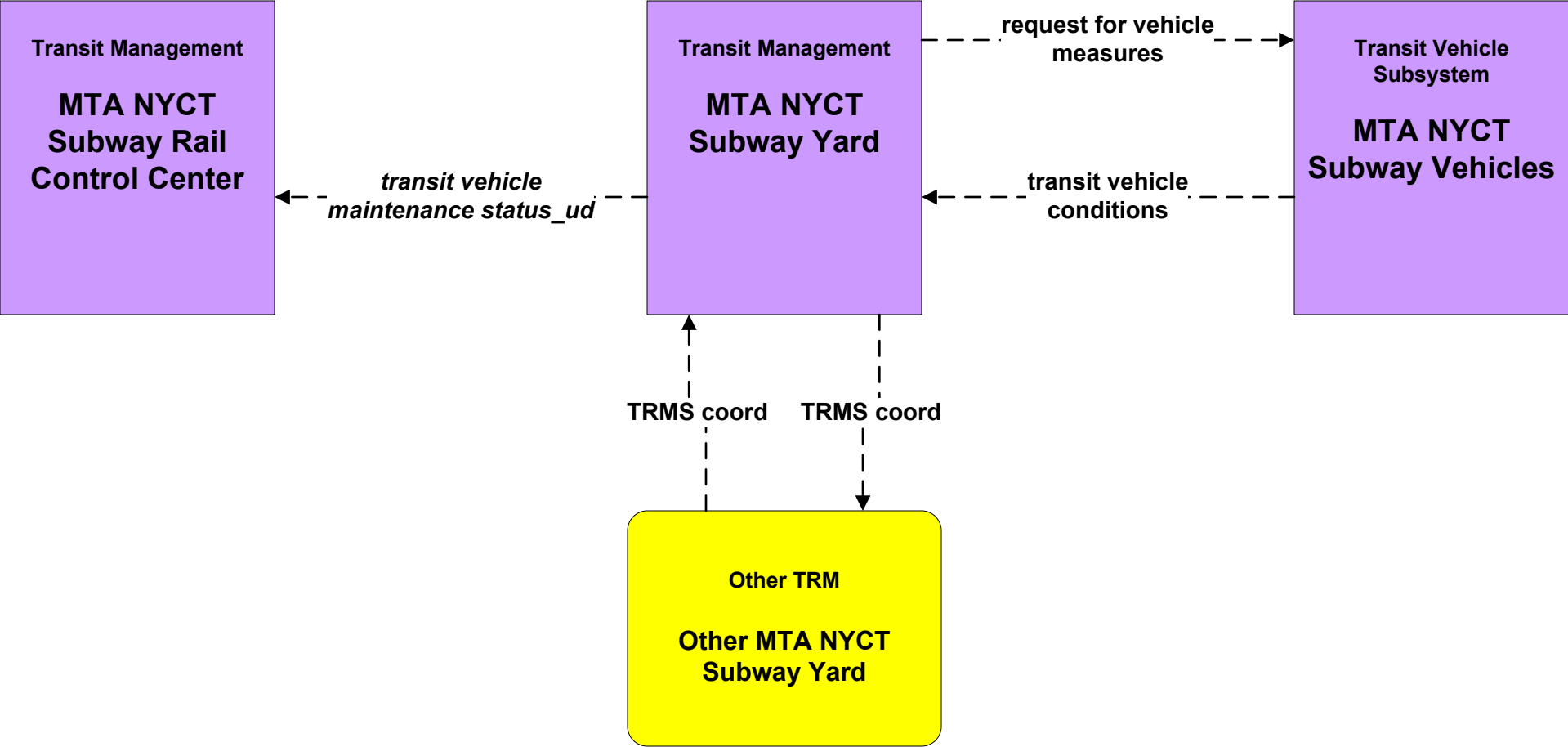
**APTS6 - Transit Vehicle Maintenance
MTA NYC Transit Bus**



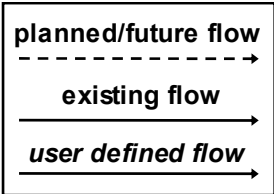
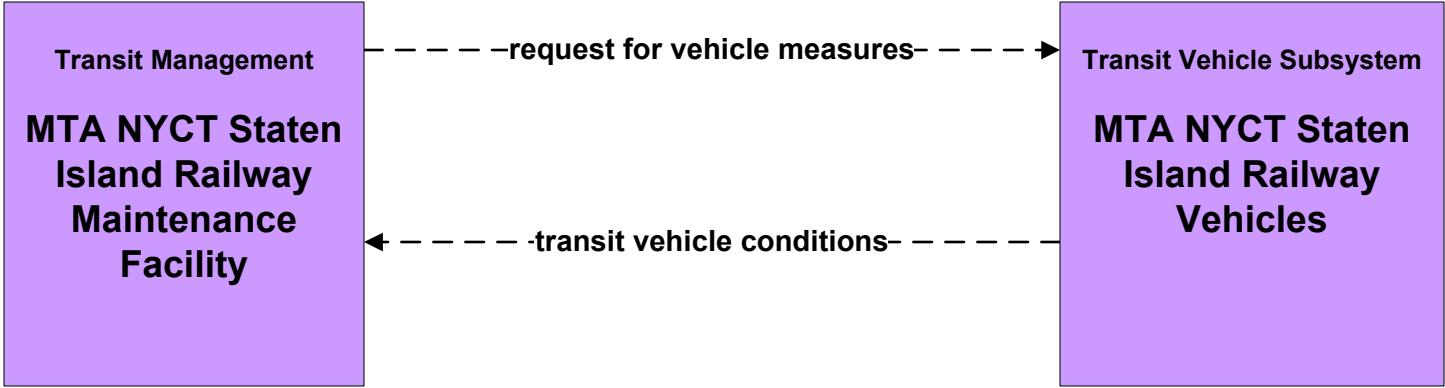
APTS6 - Transit Vehicle Maintenance
MTA NYC Bus Depot Central Road Service



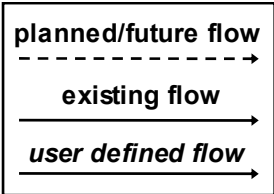
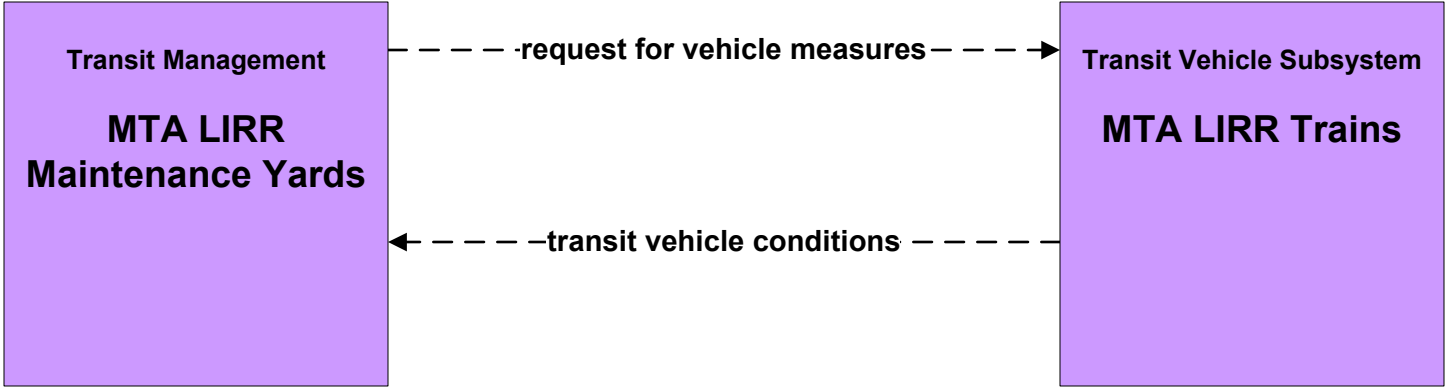
**APTS6 - Transit Vehicle Maintenance
MTA NYC Transit Subway**



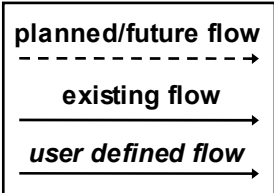
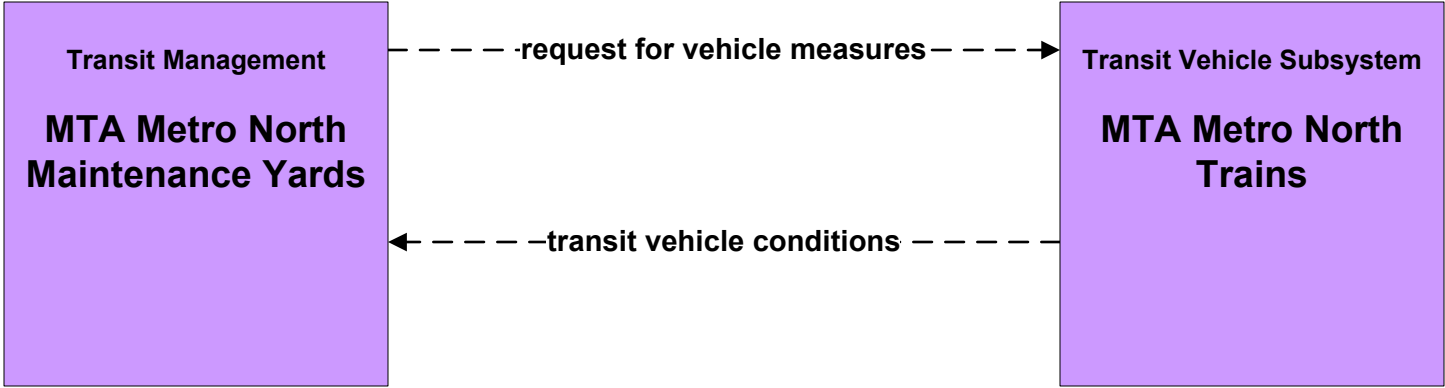
**APTS6 - Transit Vehicle Maintenance
MTA NYCT Staten Island Railway**



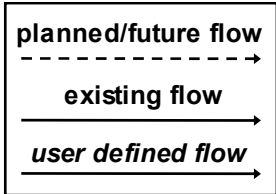
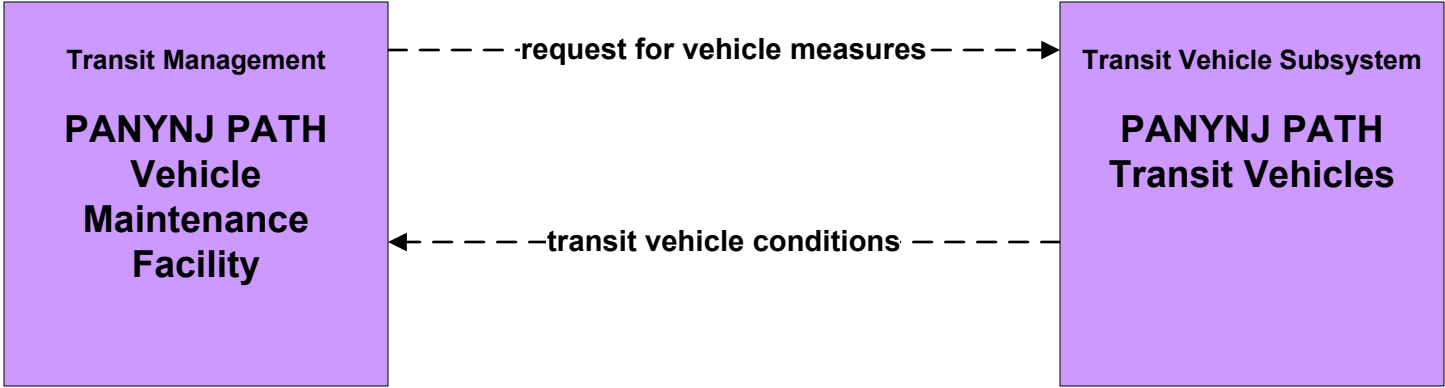
**APTS6 - Transit Vehicle Maintenance
MTA Long Island Rail Road**



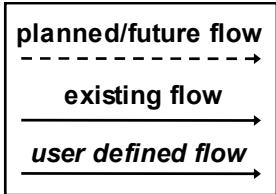
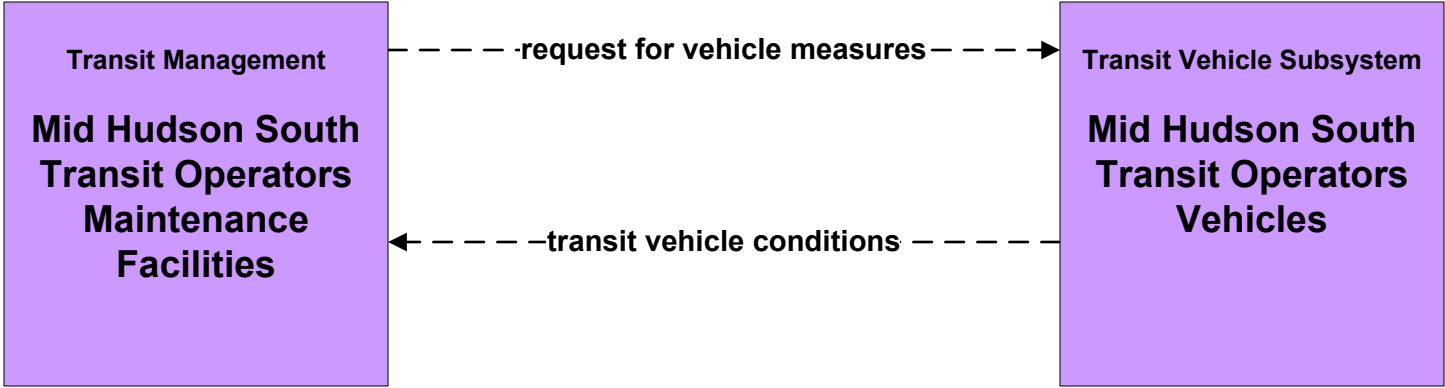
**APTS6 - Transit Vehicle Maintenance
MTA Metro North Railroad**



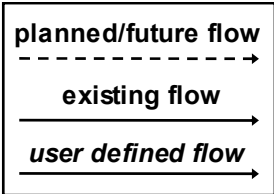
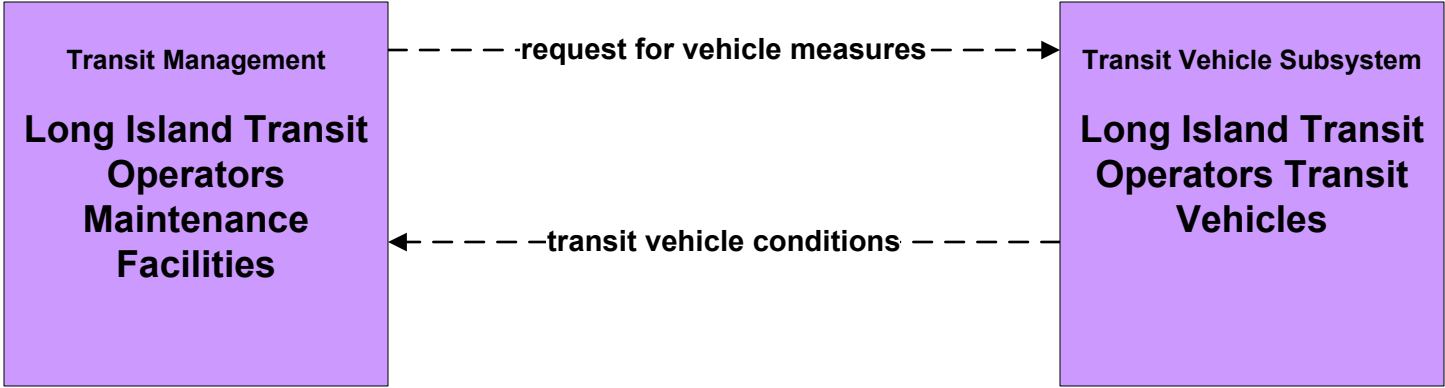
**APTS6 - Transit Vehicle Maintenance
PANYNJ PATH**



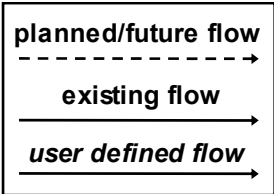
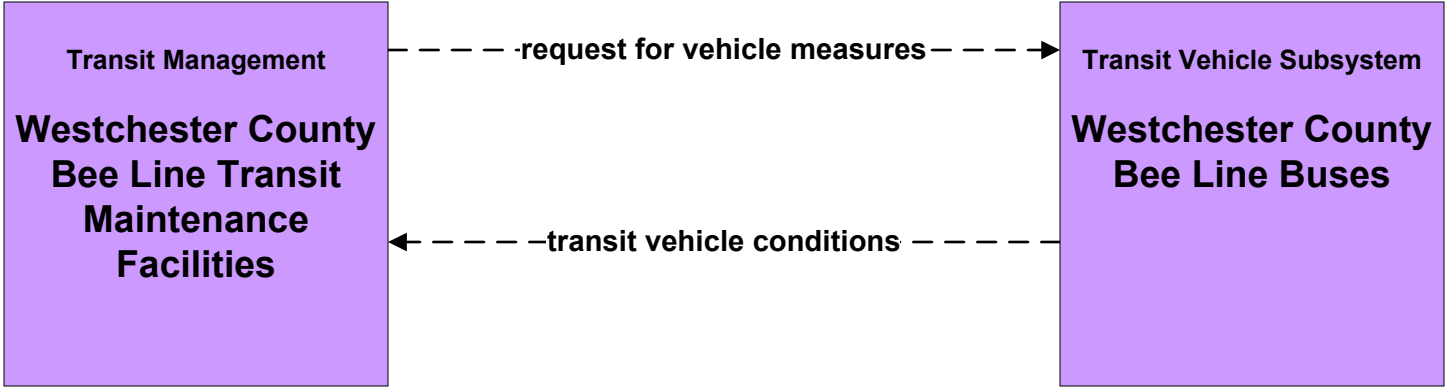
**APTS6 - Transit Vehicle Maintenance
Mid Hudson South Transit Operators**



**APTS6 - Transit Vehicle Maintenance
Long Island Transit Operators**



**APTS6 - Transit Vehicle Maintenance
Westchester County Bee Line**



**APTS7 - Multimodal Coordination
Regional Transit Information Exchange**

Transit Management

- AMTRAK Operations Center**
- +
- Long Island Transit Operators Systems**
- +
- Mid Hudson South Transit Operators Systems**
- +
- MTA LIRR Operations Center Systems**
- +
- MTA Long Island Bus Fixed Route Bus Operations Center**
- +
- MTA Metro North Operations Center Systems**
- +
- MTA NYCT Bus Command Center - Operations**
- +
- MTA NYCT Staten Island Railway Control Facility**
- +
- MTA NYCT Subway Rail Control Center**
- +
- NJT Bus Operations Systems**
- +
- NJT Rail Operations Systems**
- +
- NYCDOT (Franchise Bus) Systems**
- +
- PANYNJ TB/T Bus Terminals/Stations Communications Desk/
Operations Center**
- +
- PANYNJ PATH Operations Center**
- +
- Private Ferry Operators Systems**
- +
- Private Long-Distance Bus Operators Systems**
- +
- TRANSCOM Other Member / Non-Member Agencies Systems**
- +
- Westchester County Bee Line Operations Center Systems**

Question: Should the PANYNJ Bus Terminal be here?

Other TRM

TRANSCOM TRIPS123

---TRMS coord---



transit incident information_ud
+
transit schedules_ud
+
transit traveler information coordination_ud

---TRMS coord---



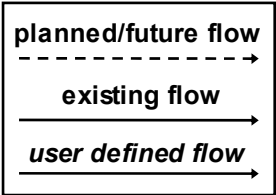
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transit schedules_ud
+
transit traveler information coordination_ud

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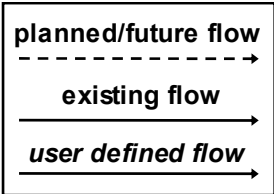
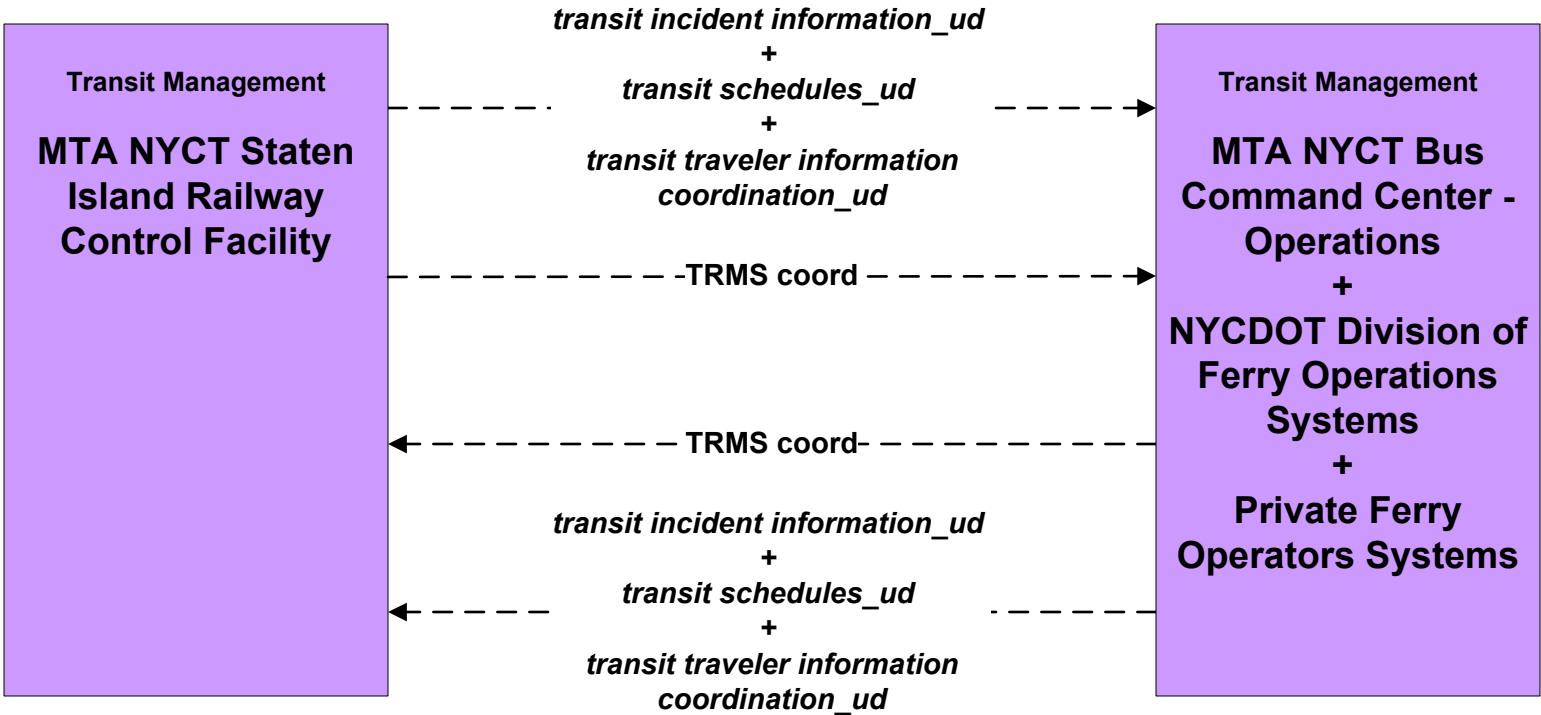


Outside NYC, transit agencies are likely to exchange transit schedules. E.g., MTA MNR & NJ Transit

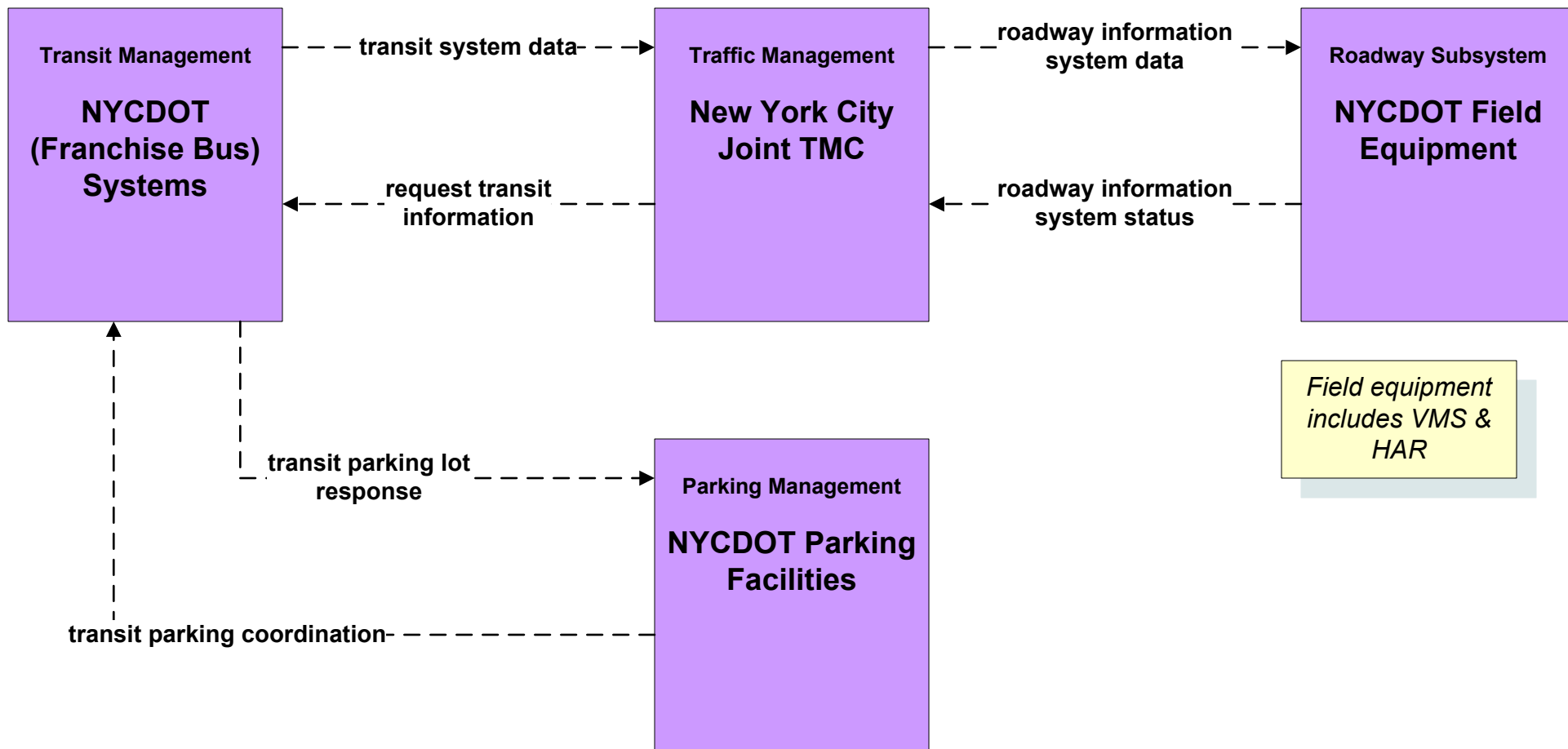
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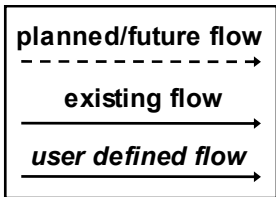
**APTS7 - Multimodal Coordination
Regional Transit Information Exchange
MTA NYCT Staten Island Railway**



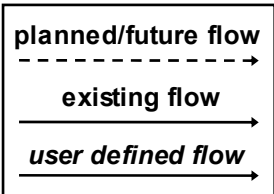
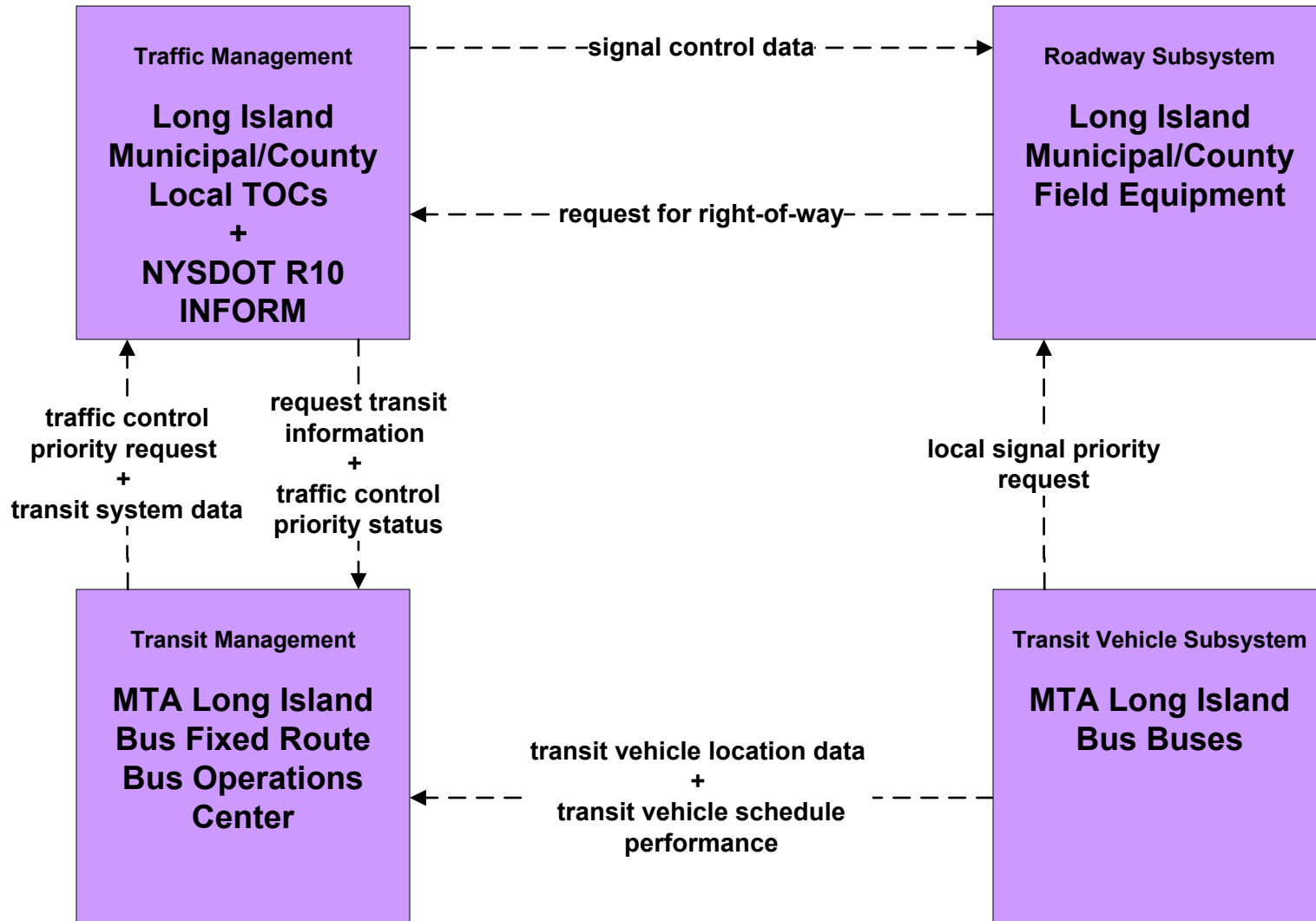
**APTS7 - Multimodal Coordination
Regional Transit Information Exchange
NYCDOT Franchise Buses**



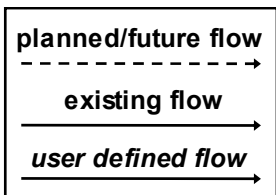
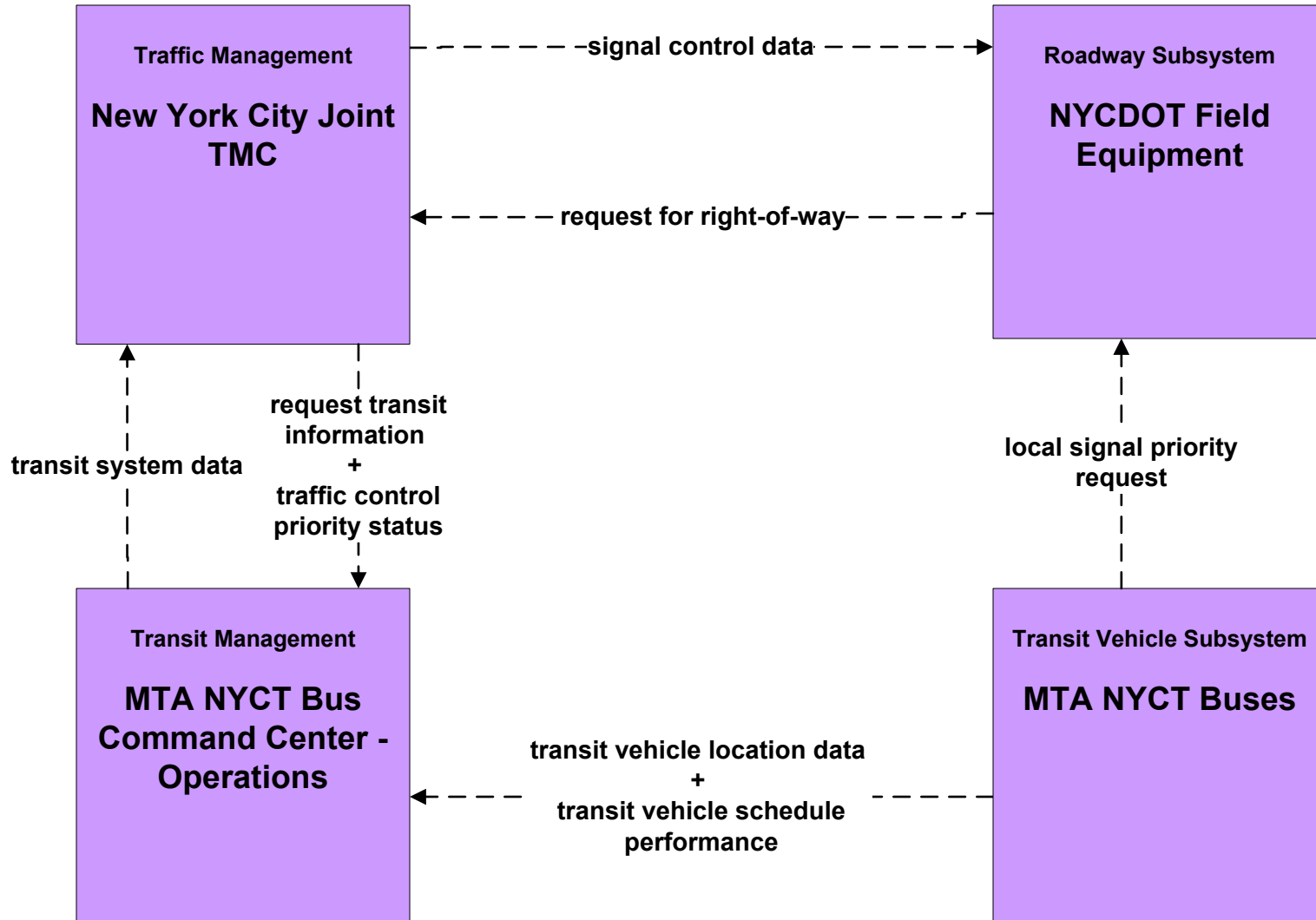
Field equipment includes VMS & HAR



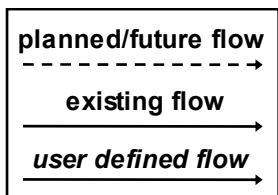
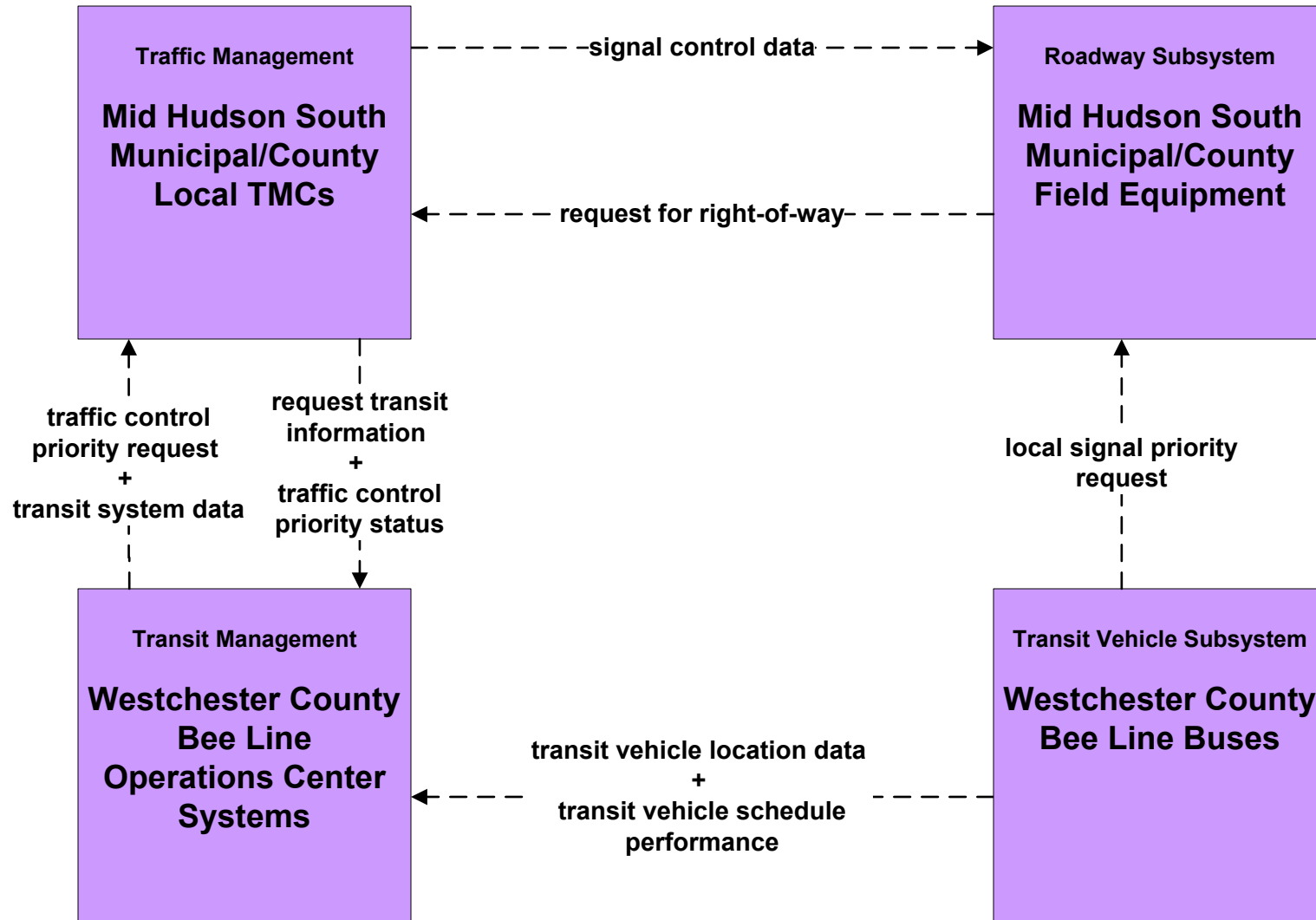
APTS7 - Multimodal Coordination MTA Long Island Bus



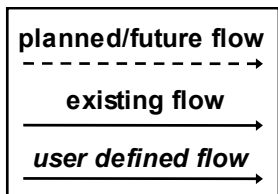
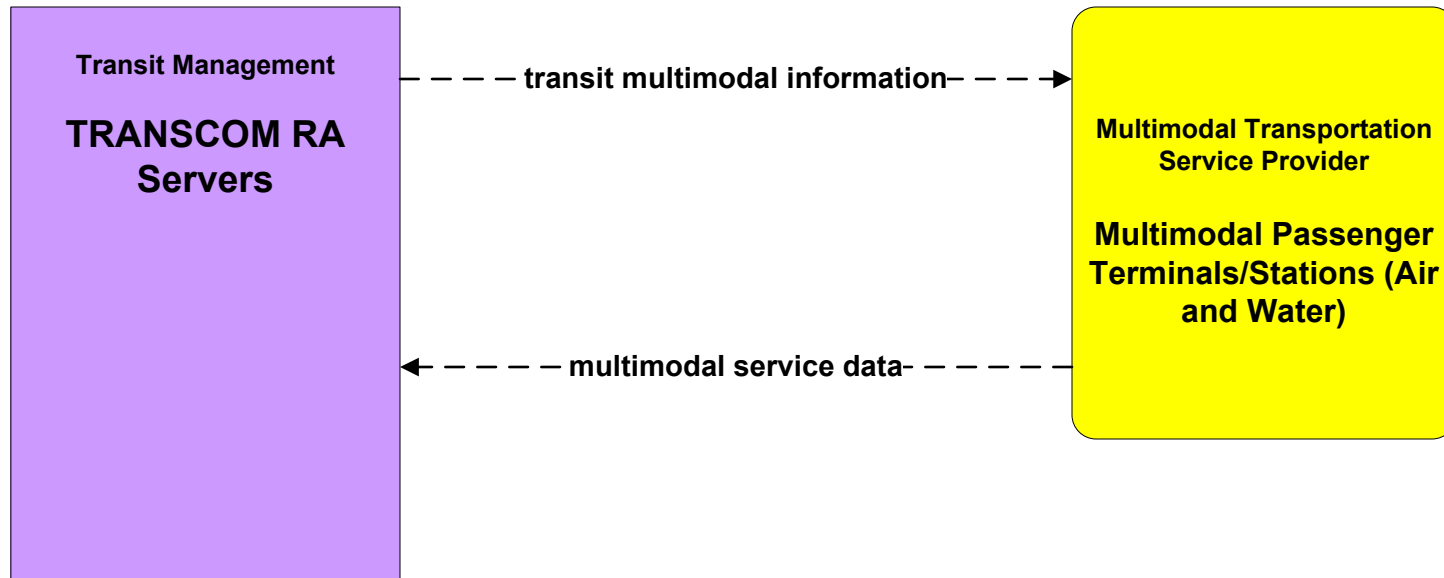
**APTS7 - Multimodal Coordination
MTA NYC Transit Buses**



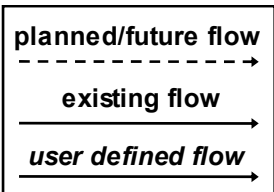
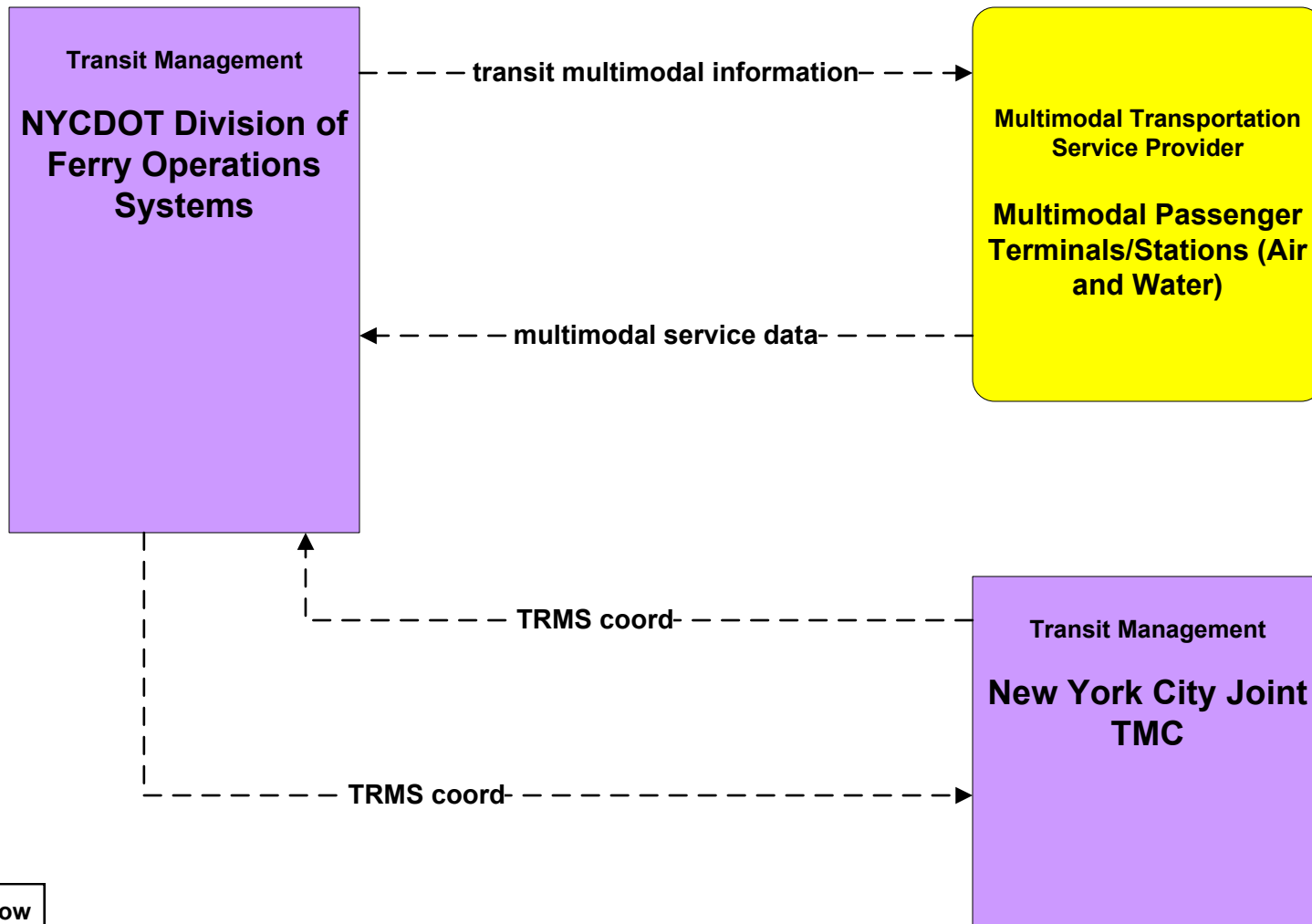
APTS7 - Multimodal Coordination Westchester County Bee Line Buses



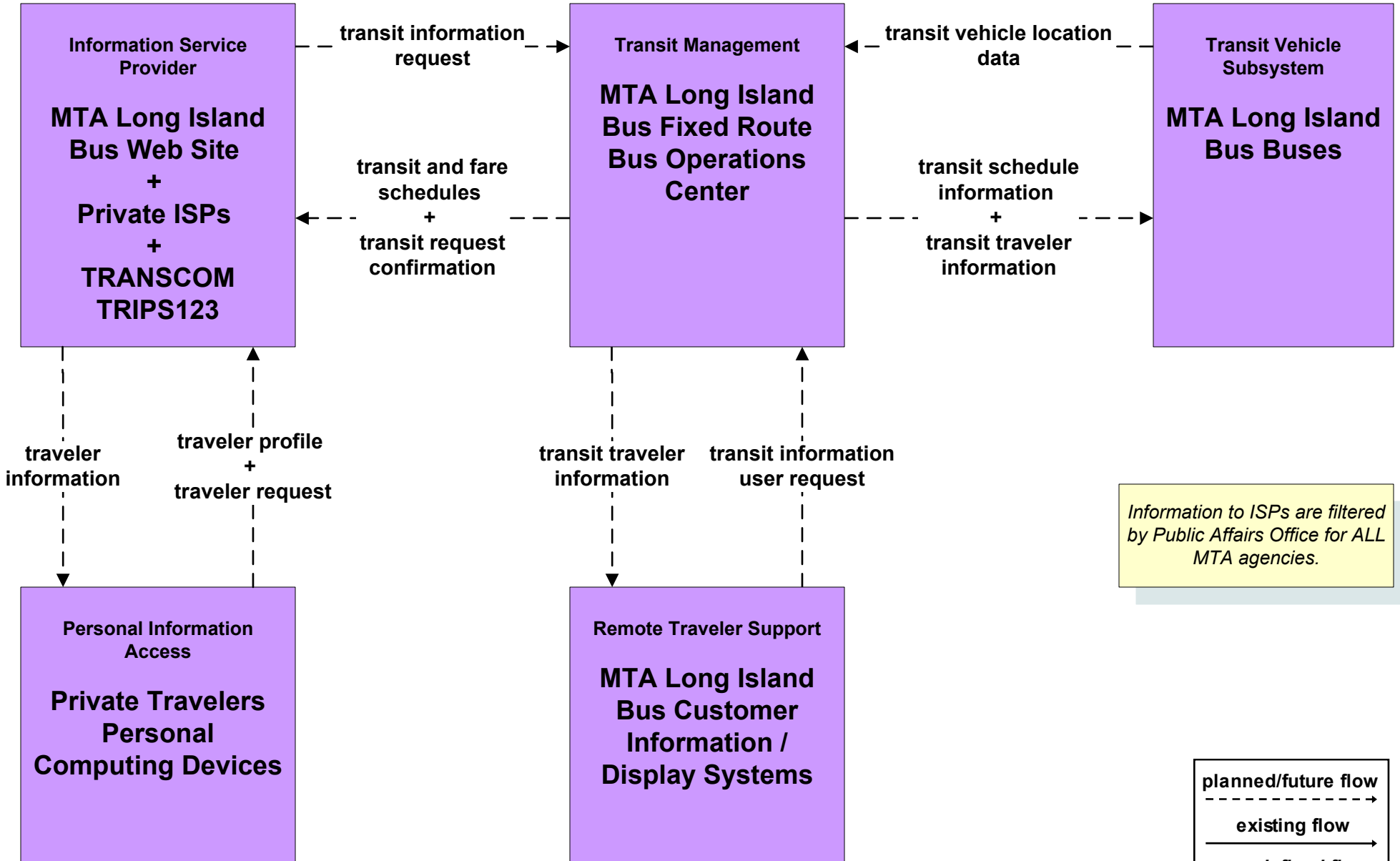
APTS7 - Multimodal Coordination TRANSCOM



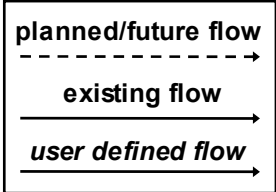
**APTS7 - Multimodal Coordination
NYCDOT Division of Ferry Operations**



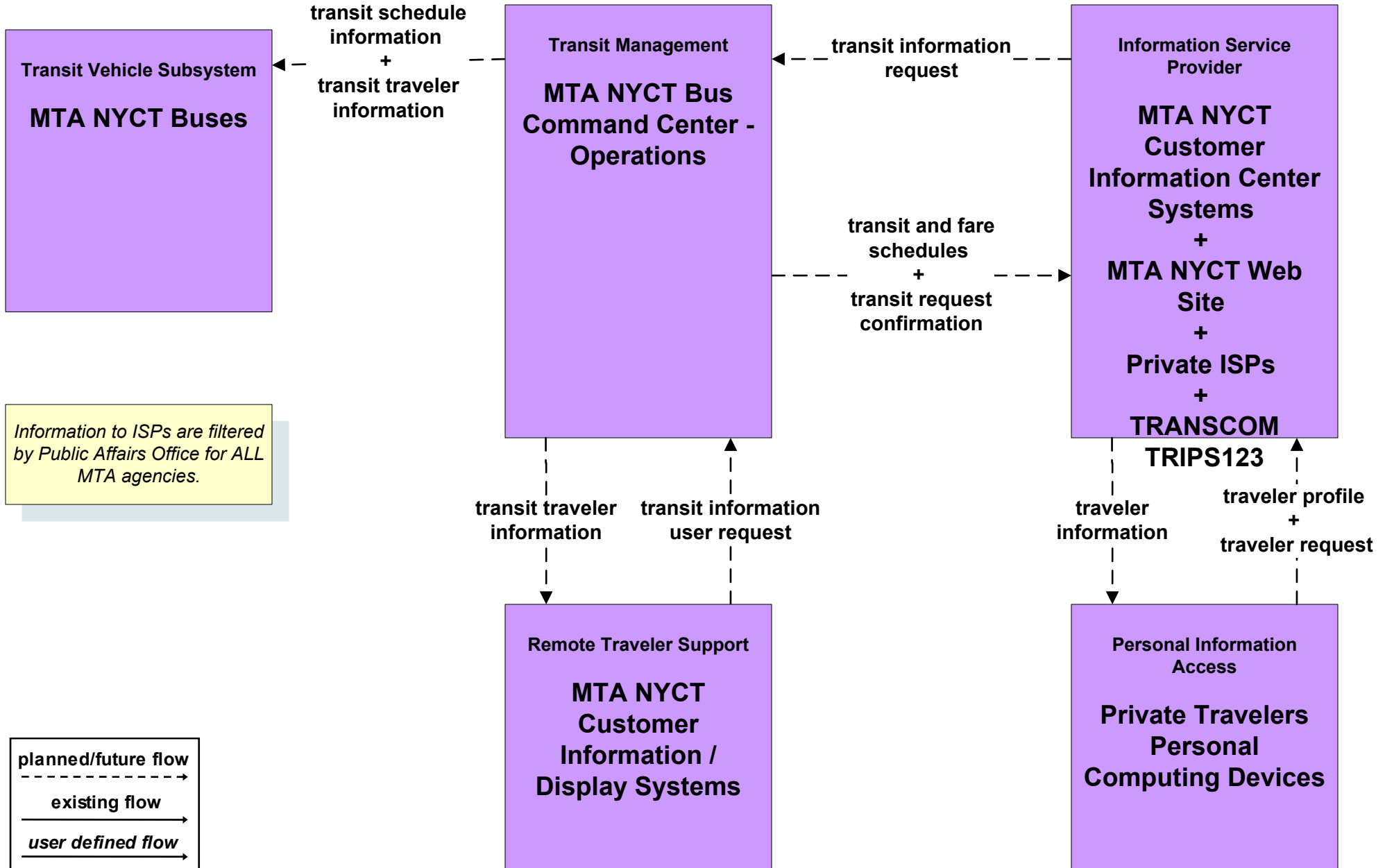
APTS8 - Transit Traveler Information MTA Long Island Bus



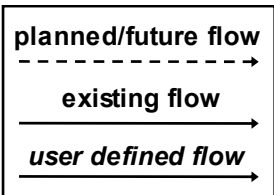
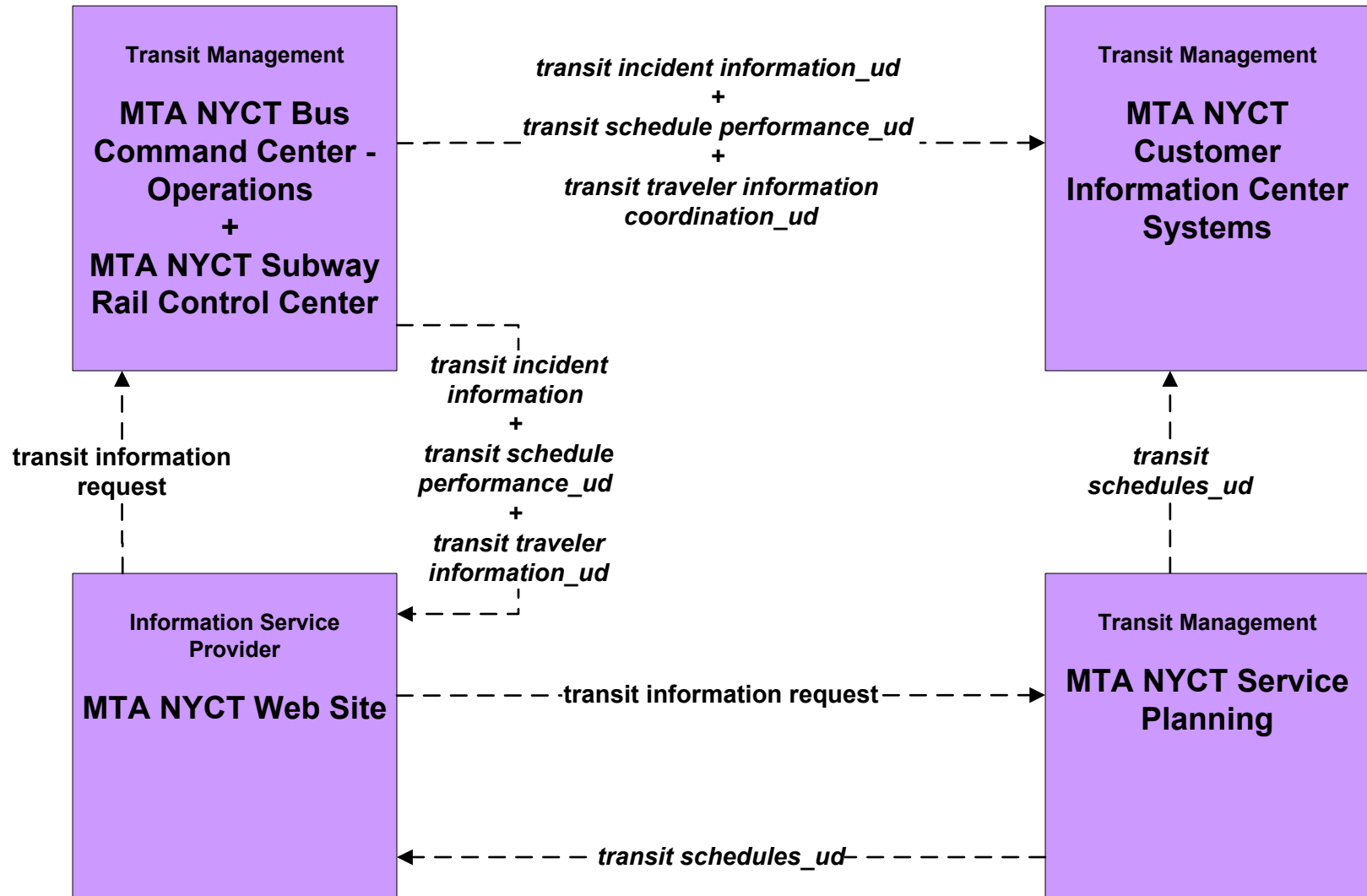
Information to ISPs are filtered by Public Affairs Office for ALL MTA agencies.



APTS8 - Transit Traveler Information MTA NYC Transit Bus (1 of 2)

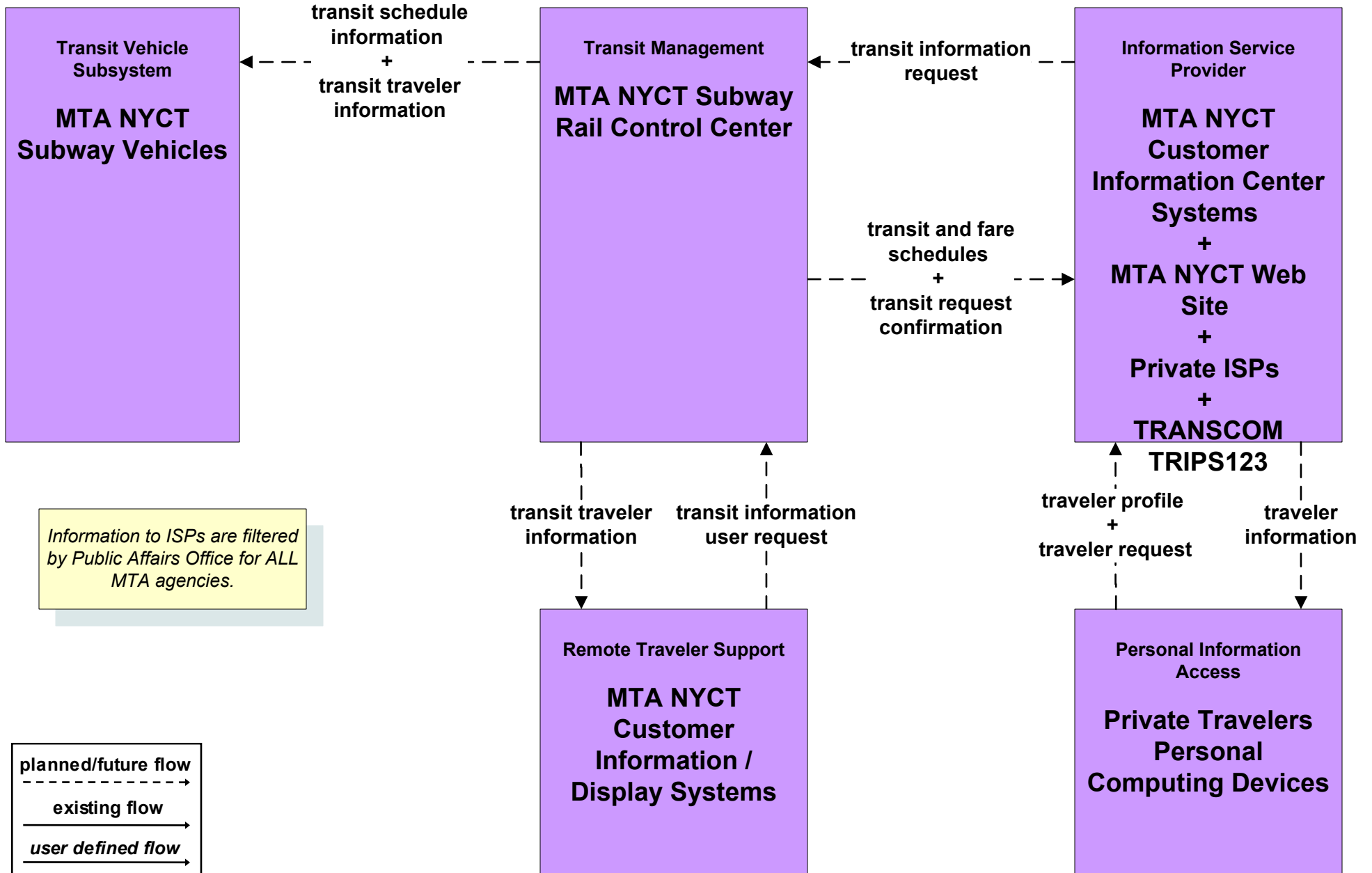


APTS8 - Transit Traveler Information MTA NYC Transit Bus (2 of 2)

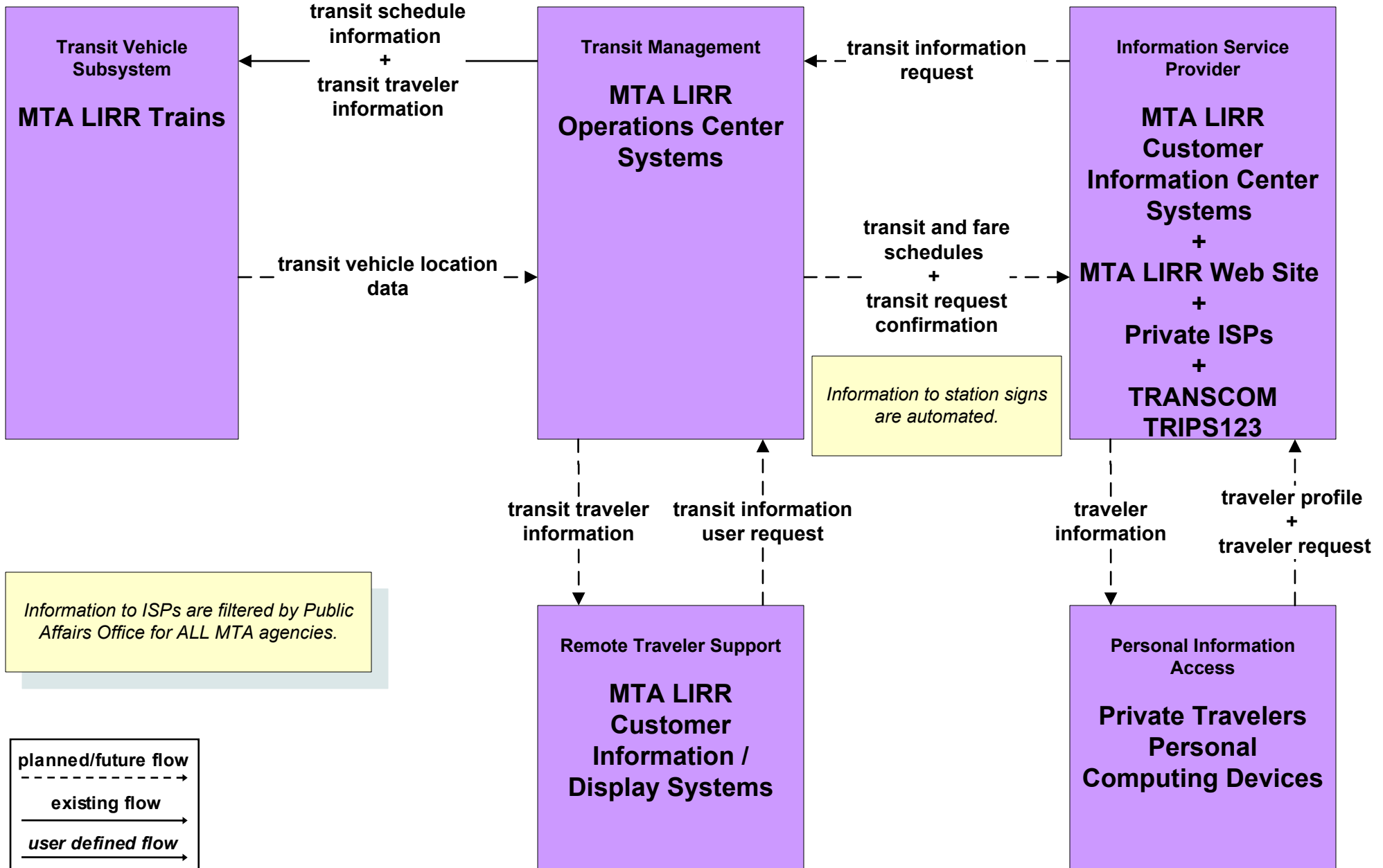


Information to ISPs are filtered by Public Affairs Office for ALL MTA agencies.

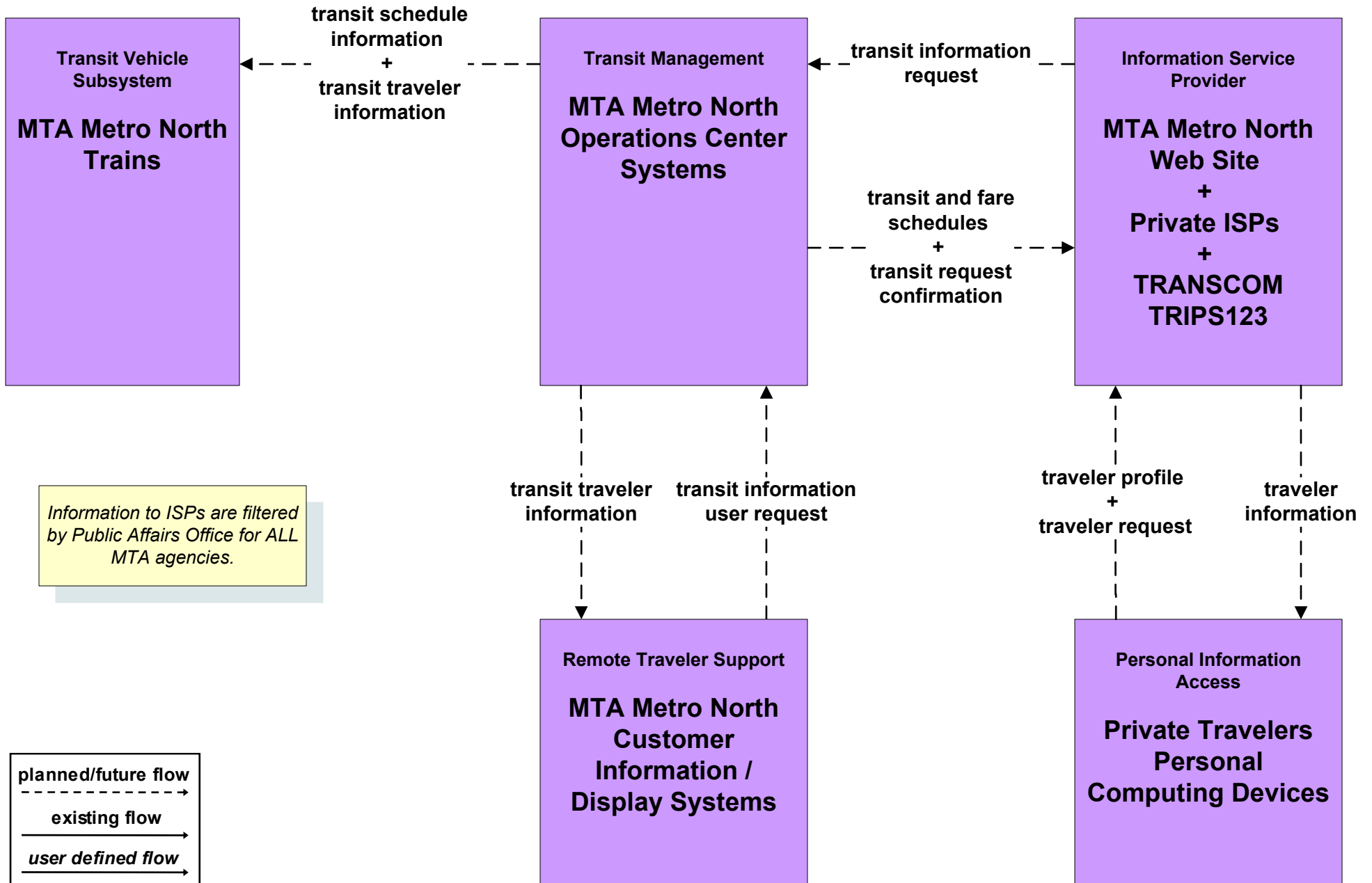
APTS8 - Transit Traveler Information MTA NYC Transit Subway



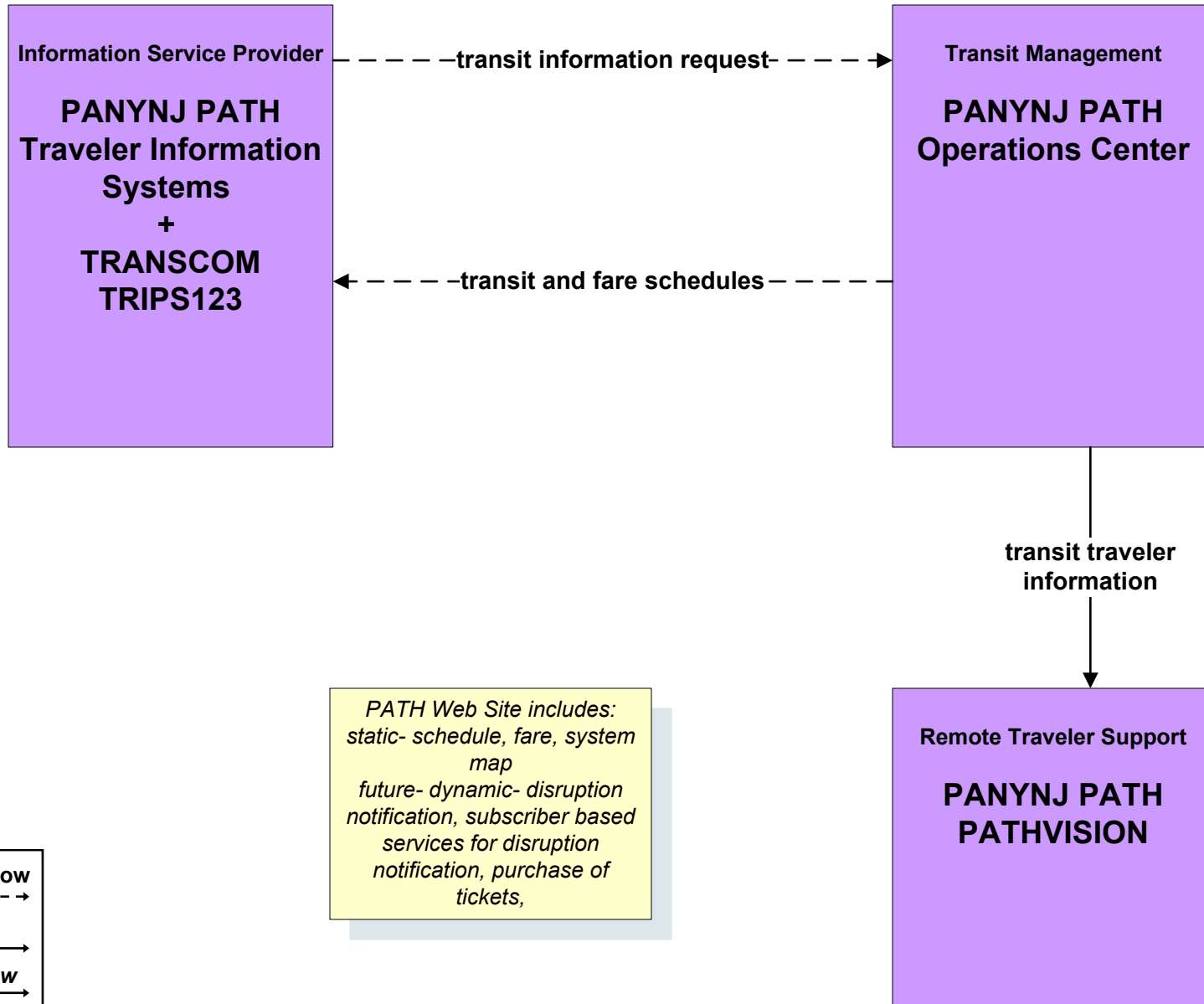
APTS8 - Transit Traveler Information MTA Long Island Rail Road



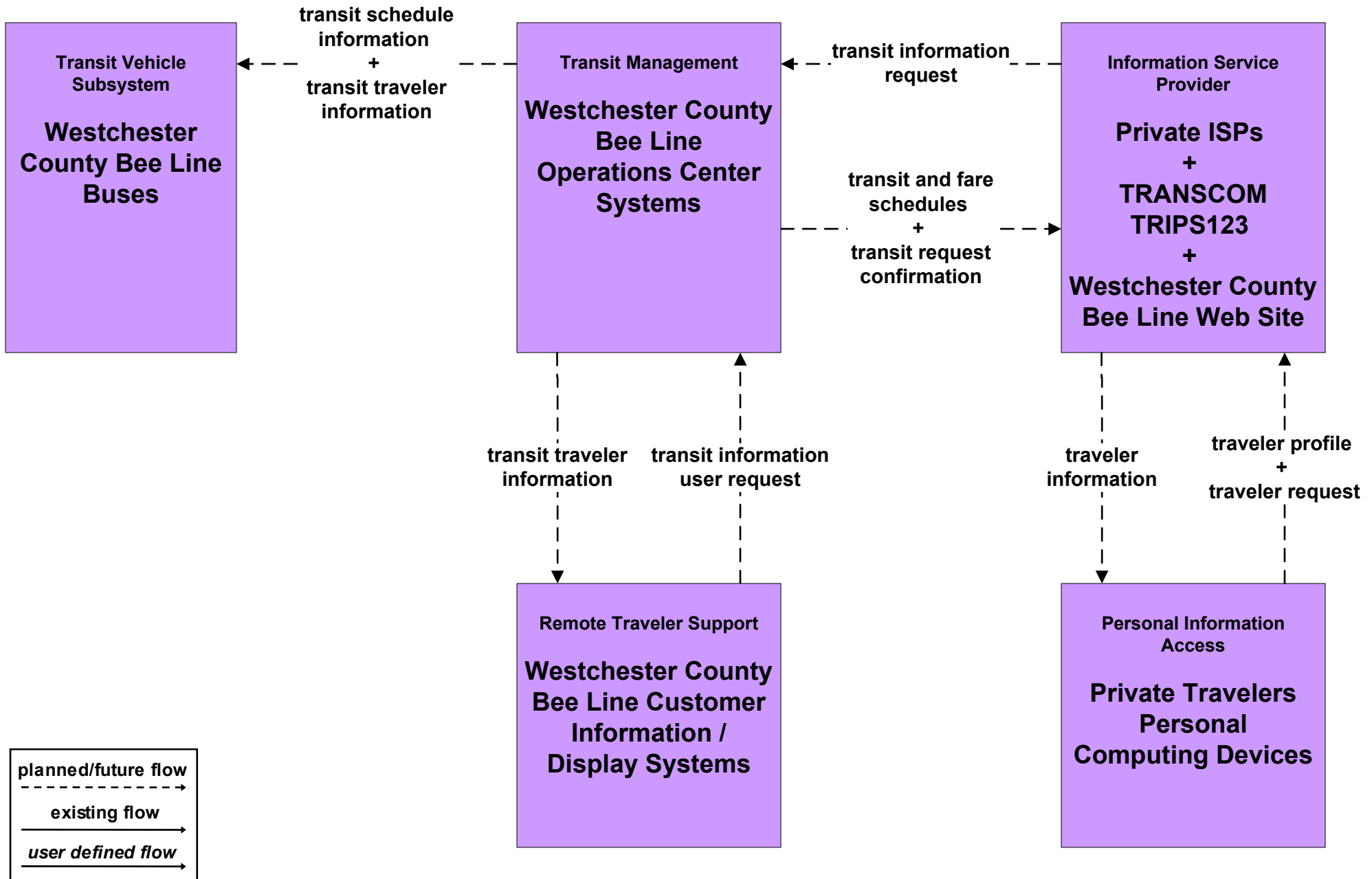
APTS8 - Transit Traveler Information MTA Metro North Railroad



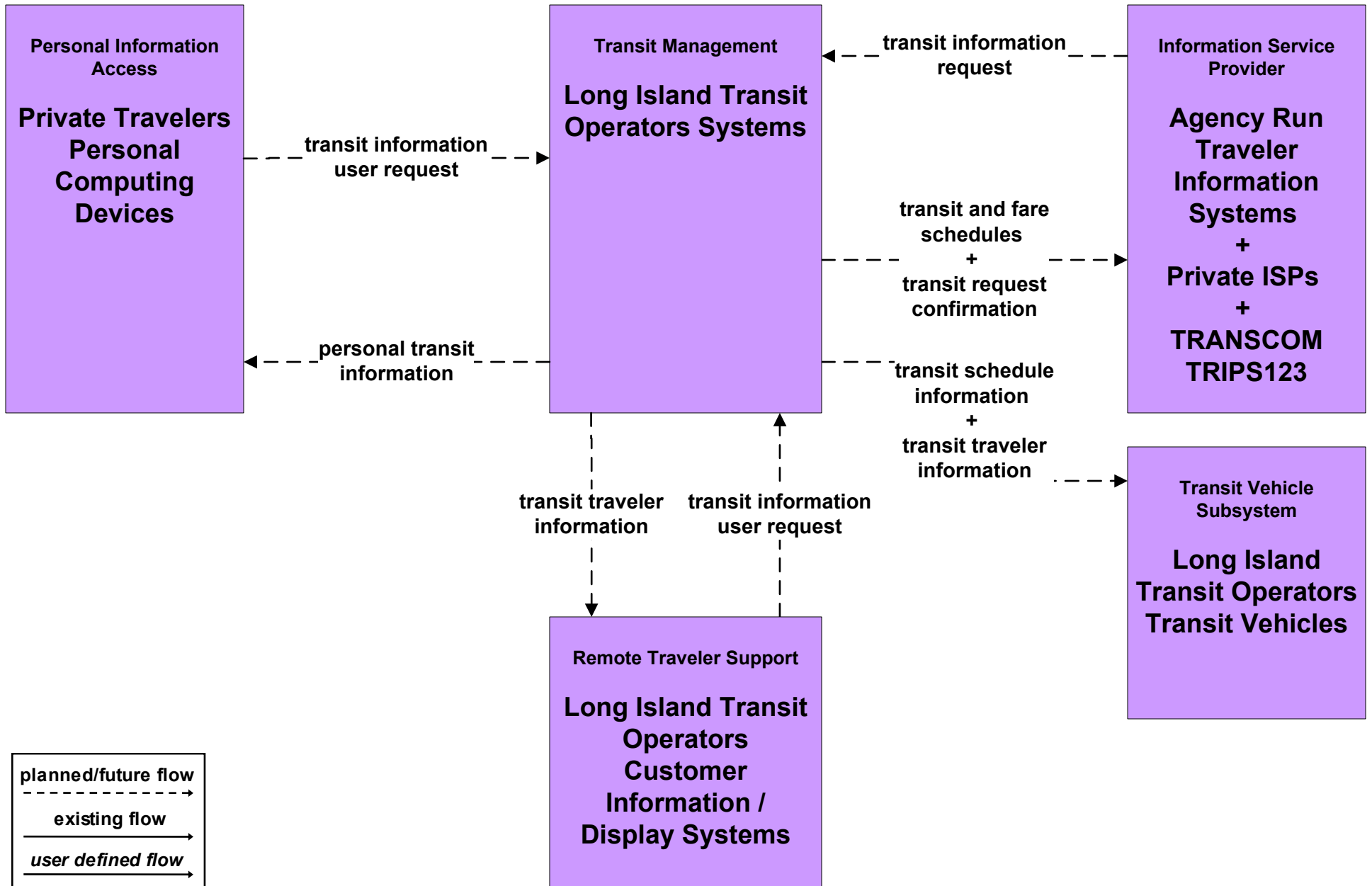
APTS8 - Transit Traveler Information PANYNJ PATH Terminals/Stations



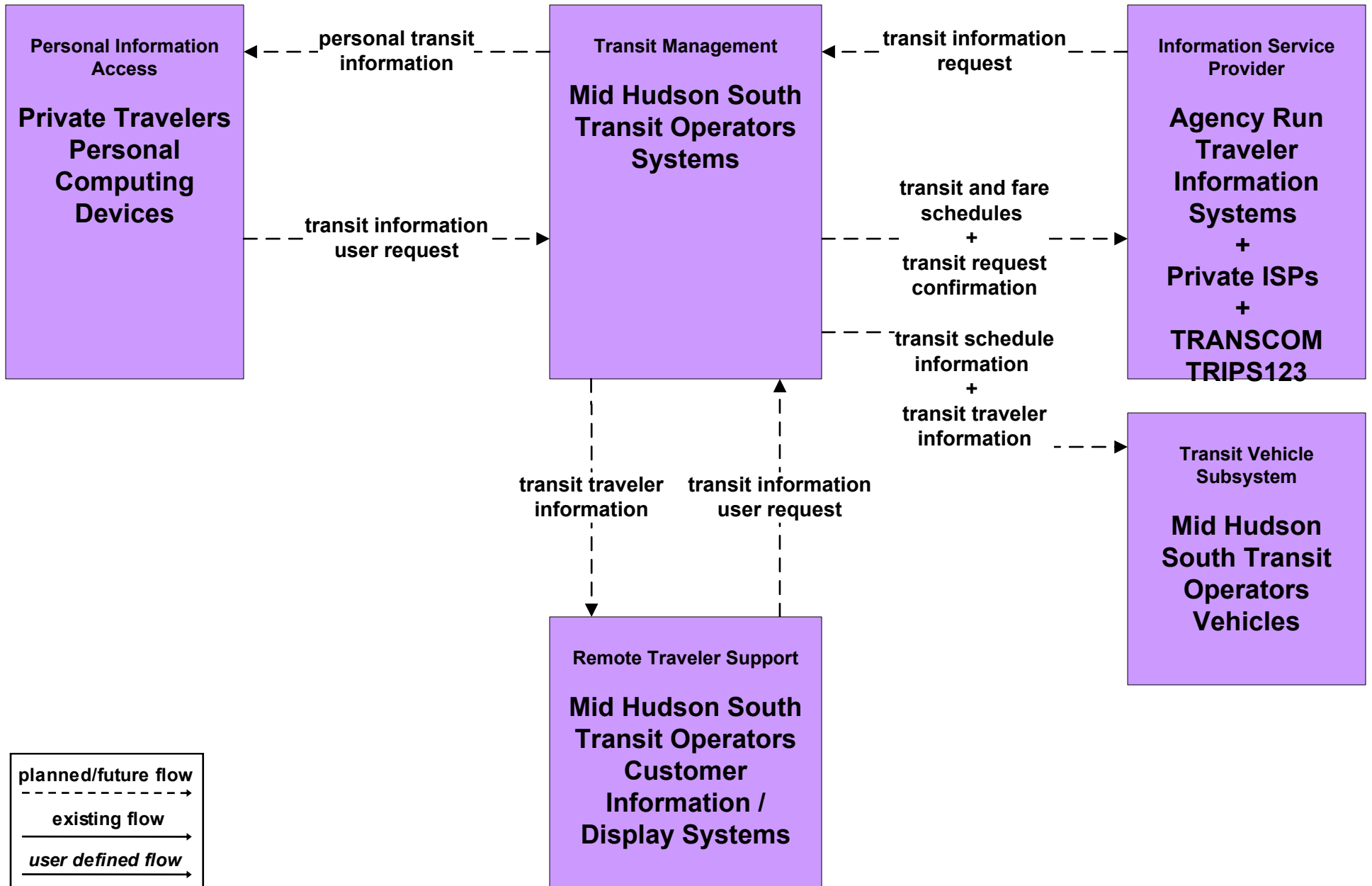
APTS8 - Transit Traveler Information Westchester County Bee Line



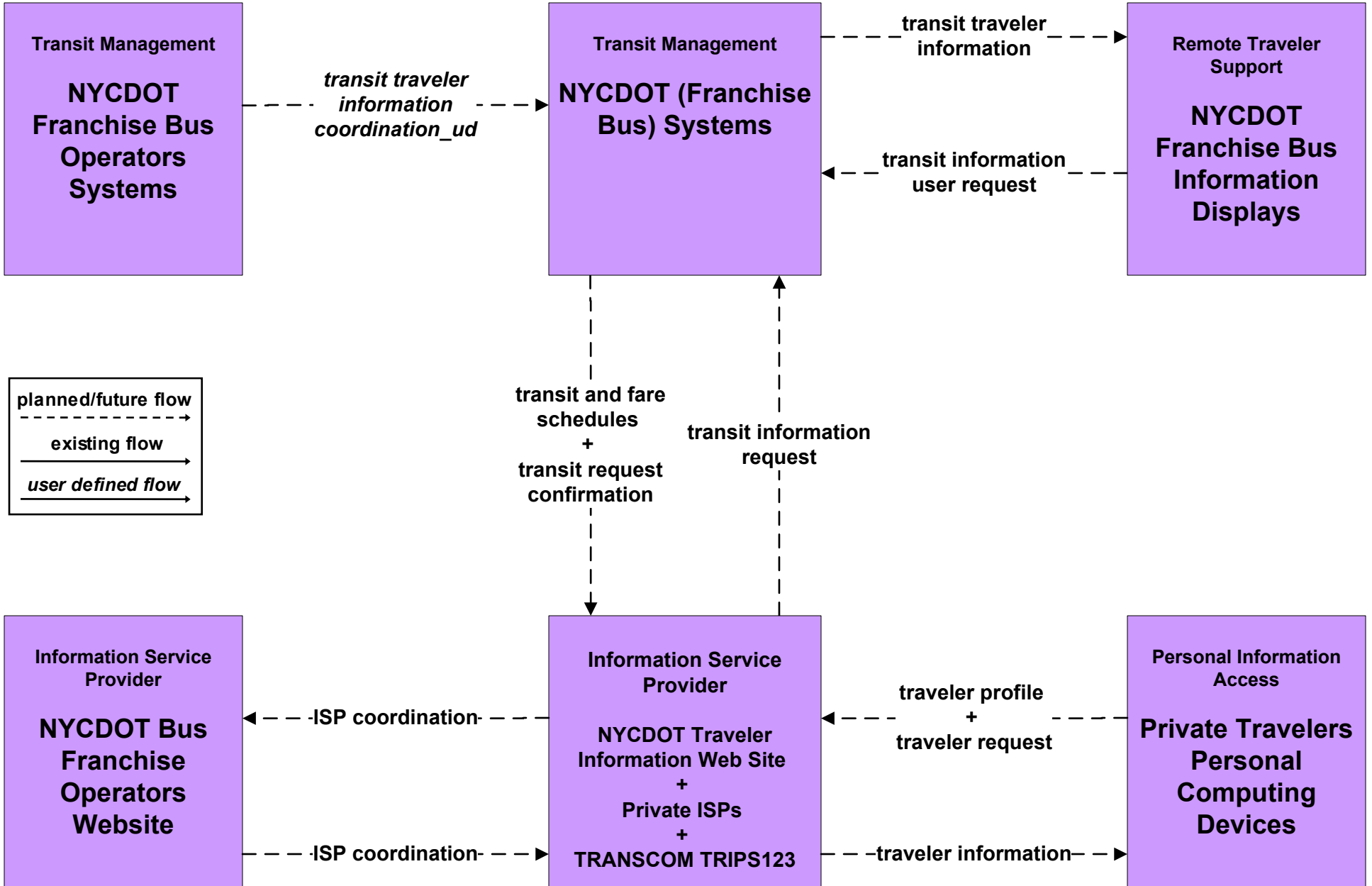
APTS8 - Transit Traveler Information Long Island Transit Operators



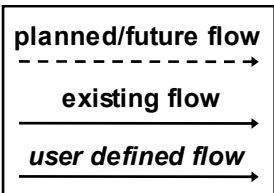
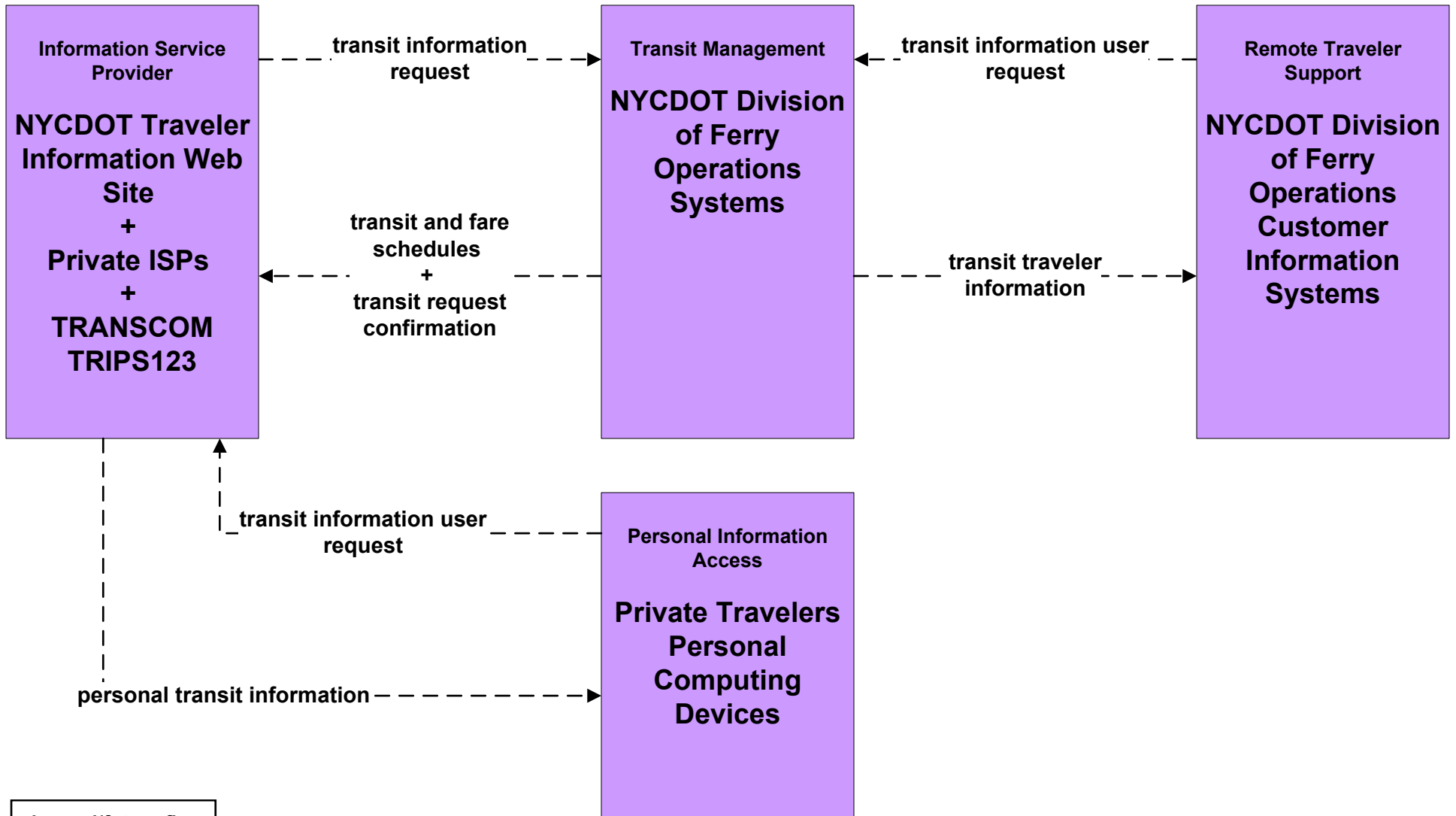
APTS8 - Transit Traveler Information Mid Hudson South Transit Operators



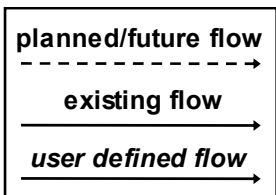
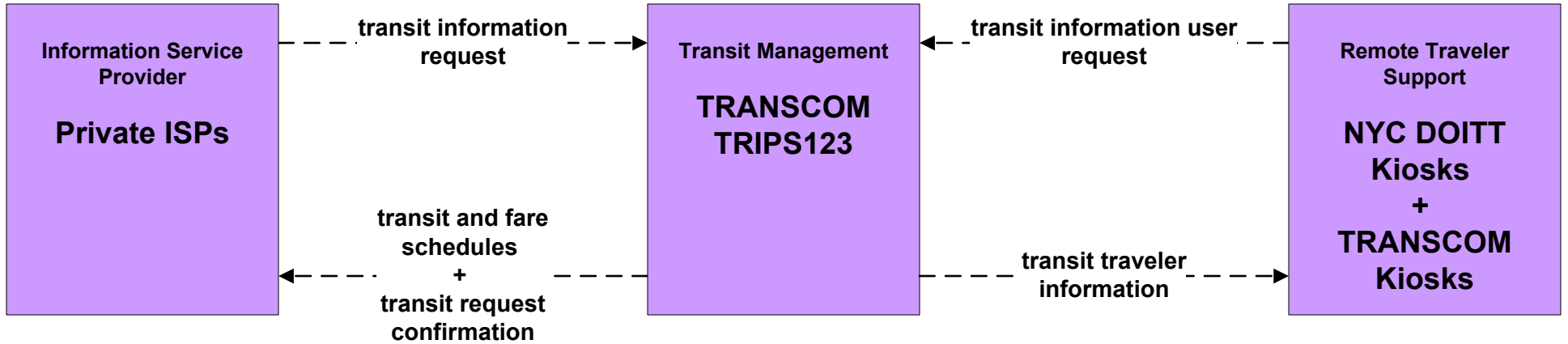
APTS8 - Transit Traveler Information NYCDOT Franchise Bus



APTS8 - Transit Traveler Information NYCDOT Ferries and Licensed Ferries



APTS8 - Transit Traveler Information TRANSCOM



APTS8 - Transit Traveler Information Pennsylvania Station

