



# API User Guide & Specifications

Version 3.0 12 December 2015



# **Document Change Log**

| Version | Change Details  | Release Date     |
|---------|---|------------------|
| No.     |   |                  |
| 1.1     | First release of document, reflecting specifications for each     | 04 June 2014     |
|         | dataset.  |                  |
| 1.2     | Amended attributes for all datasets, and added the update         | 15 June 2014     |
|         | frequency for each dataset in specification section.              |                  |
| 1.3     | Inserted notes to denote fields that are new and upcoming; not    | 26 June 2014     |
|         | yet available on the data feed.                                   |                  |
| 1.4     | Minor revisions (typo errors).                                    | 10 March 2015    |
| 1.5     | Revisions to names of datasets, and removed listing for certain   | 07 April 2015    |
|         | attributes that are redundant at this point.                      |                  |
| 2.0     | Revised document for newly revamped DataMall.                     | 13 April 2015    |
|         | - New Categorisation of Datasets                                  |                  |
|         | - Moved Park & Ride Location, Premium Bus Service, and            |                  |
|         | Carpark Rates to Static Datasets listed on MyTransport.SG.        |                  |
| 2.1     | Corrected reference notes for Carpark Availability and ERP Rates. | 14 April 2015    |
| 2.2     | Added Bus Arrival, and Taxi Availability APIs                     | 19 April 2015    |
| 2.2.1   | Amended Update Freqs for Bus Arrival and Taxi Availability        | 03 June 2015     |
| 3.0     | Bus Arrival API is now enhanced! Latest *beta* release includes:  | 12 December 2015 |
|         | - Additional 3 <sup>rd</sup> set of ETA information               |                  |
|         | - Estimated location (coordinates) of buses                       |                  |
|         | Look out for blue-highlights!                                     |                  |



## **TABLE OF CONTENTS**

| 1. DA | TAMALL ACCESS CREDENTIALS4     |
|-------|--------------------------------|
| 2. MA | AKING API CALLS5               |
| 3. AP | I SPECIFICATIONS8              |
| 3.1   | BUS ARRIVAL9                   |
| 3.2   | BUS ROUTES – SBST ROUTE INFO   |
| 3.3   | BUS ROUTES – SMRT ROUTE INFO   |
| 3.4   | BUS ROUTES – SBST SERVICE INFO |
| 3.5   | BUS ROUTES – SMRT SERVICE INFO |
| 3.6   | BUS STOPS                      |
| 3.7   | TAXI AVAILABILITY20            |
| 3.8   | CARPARK AVAILABILITY21         |
| 3.9   | ERP RATES22                    |
| 3.10  | ESTIMATED TRAVEL TIMES23       |
| 3.11  | FAULTY TRAFFIC LIGHTS24        |
| 3.12  | ROAD OPENINGS25                |
| 3.13  | ROAD WORKS26                   |
| 3.14  | TRAFFIC IMAGES                 |
| 3.15  | TRAFFIC INCIDENTS28            |
| 3.16  | TRAFFIC SPEED BANDS29          |
| 3.17  | VMS / EMAS30                   |



#### 1. DATAMALL ACCESS CREDENTIALS

Upon successful registration via MyTransport.SG Portal, you will be issued an API Account Key. Note that this Account Key is uniquely assigned to you and is not to be shared with anyone else.

With the **Account Key**, you will need to generate your **Unique User ID** via DataMall's Authentication Tool. These two pieces of info form your API authentication credentials that are required when you make your API calls.

Steps to obtaining your API authentication credentials:

- 1. Go to DataMall's Authentication Tool <a href="http://datamall.mytransport.sg/tool.aspx">http://datamall.mytransport.sg/tool.aspx</a>
- 2. Enter your **Account Key**.
- 3. Click on the button Generate GUID
- 4. Your **Unique User ID** appears. You're good to go!



Figure 1-1 – Obtaining API authentication credentials



#### 2. MAKING API CALLS

API calls will need to be made programmatically and in regular intervals to obtain the live streaming data for you respective development or research needs. For testing and illustration purposes, we will make an API call via a reliable third-party HTTP web client – Request Maker.

Steps to making an API call:

- 1. Go to <a href="http://requestmaker.com/">http://requestmaker.com/</a>
- 2. At the top right corner of the page, set request type to GET.
- 3. Enter the dataset URL (refer to subsequent specs in this document) in the field **Request URL**. Note that the URLs are what you should subsequently apply to your codes to access the data programmatically.
- 4. Under **Request Headers**, click on the Add button to include two additional headers.
- 5. Following the example in Figure 2-1 below, populate the first two headers with your access credentials.
- 6. A custom header of "accept" allows you to specify the response format of your API call. Enter "application/json" for JSON format, or "application/atom+xml". This allows you to specify the response format of the API.
- 7. Click on the Submit button.

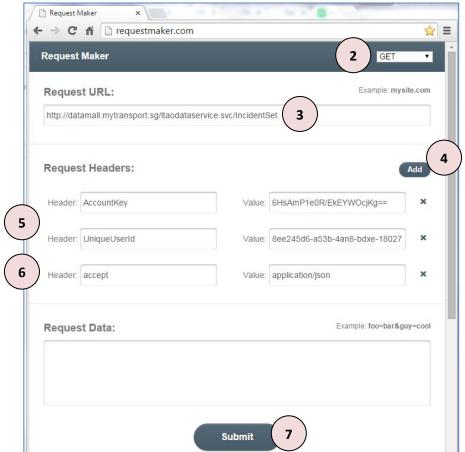


Figure 2-1



Figure 2-2 below shows the response in JSON format, displayed under the **Response Body** section, of an API call made on the Traffic Incidents dataset.

```
Response Body:
   metadata": {
"uri": "http://datamall.mytransport.sg/LTAoDataService.svc/IncidentSet(9357334)", "type":
"LTAModel.Incident"
}, "IncidentID": 9357334, "Message": "(12/4)23:32 Roadworks on North Bridge Road (towards Tan Quee
Lan Street) after Rochor Road.", "Latitude": 1.2994540875282921, "Longitude": 103.85634585628669,
"Type": "Road Work", "Summary": null, "CreateDate": "VDate(1428853813560)V", "Distance": 0
}, {
   metadata": {
"uri": "http://datamall.mytransport.sg/LTAoDataService.svc/IncidentSet(9357335)", "type":
"LTAModel.Incident"
}, "IncidentID": 9357335, "Message": "(12/4)23:32 Roadworks on North Bridge Road near North Bridge
Road/Stamford Road Junction.", "Latitude": 1.2934429919457973, "Longitude": 103.85197851637307,
"Type": "Road Work", "Summary": null, "CreateDate": "VDate(1428853813570)V", "Distance": 0
   metadata": {
"uri": "http://datamall.mytransport.sg/LTAoDataService.svc/IncidentSet(9357336)", "type":
"LTAModel.Incident"
}, "IncidentID": 9357336, "Message": "(12/4)23:31 Roadworks on Mandai Road (towards SLE) after Lorong
. "Lada Hitam. Avoid left lane.", "Latitude": 1.4158620196651637, "Longitude": 103.80024992037811, "Type"
"Road Work", "Summary": null, "CreateDate": "VDate(1428853813577)V", "Distance": 0
   metadata": {
```

Figure 2-2: API Response as shown on Request Maker.

API responses are limited to a max of 50 records of the dataset per call. To retrieve more records, you need to append the following parameter **\$skip=X**′ to the API call (URL), with X being a number of records to skip.

For example, if you want to retrieve the 51<sup>st</sup> to the 100<sup>th</sup> record for the Bus Stops dataset, the API call should be:

http://datamall.mytransport.sq/ltaodataservice.svc/BusStopCodeSet?\$skip=50

To retrieve the 151<sup>st</sup> to 200<sup>th</sup> record, supply '**?\$skip=150**', and so on. Remember, each URL call returns only a max of 50 records!



Here's an example of how you can retrieve the full set of data programmatically. The example is coded in Python 2.7.

```
import json
import urllib
from urlparse import urlparse
import httplib2 as http #External library
if name ==" _main__":
   #Authentication parameters
   headers = { 'AccountKey' : '6HsAmPleOR/EkEYWOcjKg==',
               'UniqueUserID' : '8ee245d6-a53b-4an8-bdxe-18027af5e4c5',
               'accept' : 'application/json'} #Request results in JSON
   #API parameters
   uri = 'http://datamallplus.cloudapp.net' #Resource URL
   path = '/ltaodataservice.svc/IncidentSet?'
   #Query parameters
   'Distance':'5000'}; # Distance in metres
   #Build query string & specify type of API call
   target = urlparse(uri + path + urllib.urlencode( params ) )
   print target.geturl()
   method = 'GET'
   body = ''
   #Get handle to http
   h = http.Http()
   #Obtain results
   response, content = h.request(
       target.geturl(),
       method,
       body,
       headers)
   #Parse JSON to print
   jsonObj = json.loads(content)
   print json.dumps(jsonObj, sort_keys=True, indent=4)
   #Save result to file
   with open("traffic incidents.json", "w") as outfile: #Saving
jsonObj["d"]
       json.dump(jsonObj, outfile, sort keys=True, indent=4,
ensure ascii=False)
```



## 3. API SPECIFICATIONS

The following lists all real-time / dynamic datasets that are refreshed at regular intervals and served out via APIs. Specification for each API can be found in the rest of this document.

|                                 | Public-Transport Related (Total 7)  | Description   |
|---------------------------------|---|---|
| 1                               | Bus Arrival   | API that returns Bus Arrival information for Bus Services at a queried Bus Stop, including: Estimated Time of Arrival, Load info (i.e. how crowded the bus is), and if the bus is wheel-chair accessible (WAB).   |
| 2                               | Bus Routes - SBST Route Info  | Lists information for each bus stop along bus routes operated by SBS Transit, including Bus Stop code, first and last bus absolute arrival times.   |
| 3                               | Bus Routes - SMRT Route Info  | Lists information for each bus stop along bus routes operated by SMRT, including Bus Stop code, first and last bus absolute arrival times.  |
| 4                               | Bus Routes - SBST Service Info  | Lists information for bus services operated by SBS Transit, including: start and stop locations, and frequency of dispatches for peak and non-peak hours in the mornings (AM) and evenings (PM).  |
| 5                               | Bus Routes - SMRT Service Info  | Lists information for bus services operated by SMRT, including: start and stop locations, and frequency of dispatches for peak and non-peak hours in the mornings (AM) and evenings (PM).   |
| 6                               | Bus Stops   | Lists details for all bus stops in Singapore (code, road, description).   |
| 7                               | Taxi Availability   | API that returns you the location coordinates of all Taxis that are available for hire at present moment. Does not include "Hired" or "Busy" Taxis.   |
|                                 |   |   |
|                                 |   |   |
|                                 | Traffic Related (Total 10)  | Description   |
| 8                               | Traffic Related (Total 10)  Carpark Availability  | Lists no. of available carpark lots for major shopping malls and developments in Orchard, Marina, HarbourFront, Jurong Lake District.   |
| 8                               |   | Lists no. of available carpark lots for major shopping malls and developments in Orchard, Marina, HarbourFront, Jurong Lake   |
|                                 | Carpark Availability  | Lists no. of available carpark lots for major shopping malls and developments in Orchard, Marina, HarbourFront, Jurong Lake District.  Lists ERP rates for all vehicle types across all timings – weekdays /  |
| 9                               | Carpark Availability  ERP Rates   | Lists no. of available carpark lots for major shopping malls and developments in Orchard, Marina, HarbourFront, Jurong Lake District.  Lists ERP rates for all vehicle types across all timings – weekdays / weekends / public holidays.  |
| 9<br>10<br>11<br>12             | Carpark Availability  ERP Rates  Estimated Travel Times  Faulty Traffic Lights  Road Openings                             | Lists no. of available carpark lots for major shopping malls and developments in Orchard, Marina, HarbourFront, Jurong Lake District.  Lists ERP rates for all vehicle types across all timings – weekdays / weekends / public holidays.  Lists estimated travel times on expressways in segments.  Lists alerts of traffic light signals that are currently faulty, or currently undergoing scheduled maintenance.  Lists planned road openings.   |
| 9<br>10<br>11                   | Carpark Availability  ERP Rates  Estimated Travel Times  Faulty Traffic Lights  | Lists no. of available carpark lots for major shopping malls and developments in Orchard, Marina, HarbourFront, Jurong Lake District.  Lists ERP rates for all vehicle types across all timings – weekdays / weekends / public holidays.  Lists estimated travel times on expressways in segments.  Lists alerts of traffic light signals that are currently faulty, or currently undergoing scheduled maintenance.  Lists planned road openings.  Lists road works currently being carried out.  |
| 9<br>10<br>11<br>12             | Carpark Availability  ERP Rates  Estimated Travel Times  Faulty Traffic Lights  Road Openings                             | Lists no. of available carpark lots for major shopping malls and developments in Orchard, Marina, HarbourFront, Jurong Lake District.  Lists ERP rates for all vehicle types across all timings – weekdays / weekends / public holidays.  Lists estimated travel times on expressways in segments.  Lists alerts of traffic light signals that are currently faulty, or currently undergoing scheduled maintenance.  Lists planned road openings.   |
| 9<br>10<br>11<br>12<br>13       | Carpark Availability  ERP Rates  Estimated Travel Times  Faulty Traffic Lights  Road Openings Road Works                  | Lists no. of available carpark lots for major shopping malls and developments in Orchard, Marina, HarbourFront, Jurong Lake District.  Lists ERP rates for all vehicle types across all timings – weekdays / weekends / public holidays.  Lists estimated travel times on expressways in segments.  Lists alerts of traffic light signals that are currently faulty, or currently undergoing scheduled maintenance.  Lists planned road openings.  Lists road works currently being carried out.  Contains links to images of live traffic conditions along expressways in Singapore, and the Woodlands & Tuas Checkpoints.  Lists traffic incidents currently occurring on the roads, including Accidents, Vehicle Breakdowns, Obstacles, Road Blocks, Traffic Diversions etc. |
| 9<br>10<br>11<br>12<br>13<br>14 | Carpark Availability  ERP Rates  Estimated Travel Times  Faulty Traffic Lights  Road Openings  Road Works  Traffic Images | Lists no. of available carpark lots for major shopping malls and developments in Orchard, Marina, HarbourFront, Jurong Lake District.  Lists ERP rates for all vehicle types across all timings – weekdays / weekends / public holidays.  Lists estimated travel times on expressways in segments.  Lists alerts of traffic light signals that are currently faulty, or currently undergoing scheduled maintenance.  Lists planned road openings.  Lists road works currently being carried out.  Contains links to images of live traffic conditions along expressways in Singapore, and the Woodlands & Tuas Checkpoints.  Lists traffic incidents currently occurring on the roads, including Accidents, Vehicle Breakdowns, Obstacles, Road Blocks, Traffic                 |



#### 3.1 BUS ARRIVAL

**Update (12 Dec 2015):** Bus Arrival API is now enhanced with new attributes released in **\*beta\***. Refer to blue highlights below.

| URL                                | http://datamall2.mytranspo  | rt.sg/ltaodataseı | rvice/BusArrival                      |
|------------------------------------|---|-------------------|---------------------------------------|
| Description                        | API that returns Bus Arrival information for Bus Services at a queried Bus Stop, including: Estimated Time of Arrival (ETA), Estimated Location, Load info etc. |                   |                                       |
| <b>Update Freq</b>                 | 1 minute  |                   |                                       |
| Request                            |   |                   |                                       |
| Parameters                         | Description   | Mandatory         | Sample                                |
| BusStopID                          | Bus stop reference code   | Yes               | 83139                                 |
| ServiceNo                          | Bus service number  | No                | 15                                    |
| SST                                | Request for ETA in SST  | No                | True (case sensitive; default: False) |
|                                    | Res   | ponse             |                                       |
| Attributes                         | Description   |                   | Example                               |
| ServiceNo                          | Bus service number  |                   | 15                                    |
| Status                             | Bus Status:   |                   | In Operation                          |
|                                    | <ul><li>In Operation</li></ul>  |                   |                                       |
|                                    | <ul> <li>Not In Operation</li> </ul>  |                   |                                       |
| Operator                           | Transport Operator code:  |                   | SBST                                  |
|                                    | ■ SBST  |                   |                                       |
|                                    | ■ SMRT  |                   |                                       |
| OriginatingID                      | Reference code for first bus stop in this   |                   | 77009                                 |
| T : :: TD                          | service's route sequence.   |                   | 774.24                                |
| TerminatingID                      | Reference code for last bus stop in this  |                   | 77131                                 |
| MaudDua                            | service's route sequence.   |                   |                                       |
| NextBus                            | Attributes for next approaching bus   |                   |                                       |
| SubsequentBus                      | Attributes for subsequent b   |                   |                                       |
| SubsequentBus3  ^ EstimatedArrival | Attributes for third oncomir<br>ETA date-time in GMT (defa  |                   | 2015-03-02T23:20:36+00:00             |
| ^ EStimatedArrival                 | ·   |                   |                                       |
|                                    | ETA date-time in SST (if SST  |                   | 2015-03-03T07:20:24+08:00             |
| ^ Latitude                         | Estimated location coordinates of bus at  |                   | 1.42117943692586                      |
| ^ Longitude                        | point of published data.  |                   | 103.831477233098                      |
| ^ VisitNumber                      | Ordinal value of the nth visit  | of this vehicle   | 1                                     |
|                                    | at this bus stop; $1=1^{st}$ visit, $2=2^{nd}$ visit.   |                   |                                       |
| ^ Load                             |   |                   | Standing Available                    |
|                                    | <ul> <li>Seats Available</li> </ul>   |                   |                                       |
|                                    | <ul> <li>Standing Available</li> </ul>  |                   |                                       |
|                                    | <ul> <li>Limited Standing</li> </ul>  |                   |                                       |
| ^ Feature                          | Indicates wheel-chair access  | sible bus:        | WAB                                   |
|                                    | ■ "WAB"   |                   |                                       |
|                                    | • (blank)   |                   |                                       |

<sup>^</sup> Values of real-time attributes may occasionally <u>NOT</u> appear on the API response, i.e. empty values ("") or null, if this API service is temporarily unavailable during server downtime etc. You are advised to factor such occurrences in your processing logic.



#### **Sample API Calls**

#### Example 1:

http://datamall2.mytransport.sg/ltaodataservice/BusArrival?BusStopID=83139&SST=True (refer below for sample response)

#### Example 2:

http://datamall2.mytransport.sg/ltaodataservice/BusArrival?BusStopID=83139&ServiceNo=15 (this API call will return Bus Arrival info for <u>ONLY</u> Bus 15)

```
Sample Response for Example 1:
  "odata.metadata":
"http://datamall2.mytransport.sg/ltaodataservice/$metadata#BusArrival@Element",
  "BusStopID": "83139",
  "Services": [
    {
      "ServiceNo": "15",
      "Status": "In Operation",
      "Operator": "SBST",
      "OriginatingID": "77009",
      "TerminatingID": "77131",
      "NextBus": {
        "EstimatedArrival": "2015-03-03T07:20:24+08:00",
        "Latitude": "1.421179",
        "Longitude": "103.831477",
        "VisitNumber": "1",
        "Load": "Standing Available",
        "Feature": "WAB"
      "SubsequentBus": {
        "EstimatedArrival": "2015-03-03T07:30:30+08:00",
        "Latitude": "1.412379"
        "Longitude": "103.832347",
        "VisitNumber": "1",
        "Load": "Seats Available",
        "Feature": ""
      },
      "SubsequentBus3": {
        "EstimatedArrival": "2015-03-03T07:40:36+08:00",
        "Latitude": "1.422239",
        "Longitude": "103.8321367",
        "VisitNumber": "1",
        "Load": "Seats Available",
        "Feature": "WAB"
      }
    },
      "ServiceNo": "155",
      "Status": "In Operation",
      "Operator": "SBST",
      "OriginatingID": "52009",
      "TerminatingID": "52501",
      "NextBus": {
        "EstimatedArrival": "2015-03-03T07:22:37+08:00",
        "Latitude": "1.412379",
        "Longitude": "103.832347",
        "VisitNumber": "2",
        "Load": "Seats Available",
        "Feature": ""
      },
```



```
"SubsequentBus": {
        "EstimatedArrival": "2015-03-03T07:25:17+08:00",
        "Latitude": "1.412379",
        "Longitude": "103.832347",
        "VisitNumber": "1",
        "Load": "Seats Available",
        "Feature": "WAB"
      "SubsequentBus3": {
        "EstimatedArrival": "2015-03-03T07:30:27+08:00",
        "Latitude": "1.412379",
        "Longitude": "103.832347",
        "VisitNumber": "2",
        "Load": "Seats Available",
        "Feature": "WAB"
    }
  ]
}
```



#### **Advisement on Front-End Implementation Logic**

#### 1. [EstimatedArrival] Referencing Singapore Standard Time (SST)

Applications should reference the SST, and NOT the mobile device time in deriving the bus arrival duration. To illustrate:

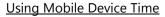
#### **Reference Time:**

Singapore Standard Time: 08:40 am Mobile Device Time: 08:35 am \*API EstimatedArrival: 08:43 am

#### **Derivation of Bus Arrival Duration:**

**Using SGP Time** 

\*API EstimatedArrival – Singapore Standard Time = 3 mins



\*API EstimatedArrival – Mobile Device Time = 8 mins



\*Assumes EstimatedArrival in SST. If you obtain this in (the default) GMT, remember to include +8 hours (to convert to SST) before deriving the Bus Arrival Duration.

#### 2. [EstimatedArrival] Rounding of Seconds

All derived bus arrival duration should be rounded down to the nearest minute.

#### **Examples:**

Derived duration: 3:49 mins
Display duration: "3 min"

Derived duration: 2:07 mins
Display duration: "2 min"

Derived duration: 1:59 mins
Display duration: "1 min"

Derived duration: 0:59 mins Display duration: "Arr"



#### 3. [EstimatedArrival] Display of Messages for NO ETA Scenarios

- a. Bus is in operation.
  - <Status> reflects "In Operation".
  - <EstimatedArrival> reflects ETA.

#### b. Bus is in operation, but no estimated timing available.

- <Status> reflects "In Operation".
- <EstimatedArrival> is empty "" or null.

#### c. Bus is not in operation.

- <Status> reflects "Not In Operation".
- <EstimatedArrival> is empty "" or null.

For scenarios (b) and (c), you may display the following in-app message, or any other appropriate / user-friendly messages.

Scenario (b): "No Est. Available"
Scenario (c): "Not Operating Now"

#### 4. [EstimatedArrival] Availability & Display of ETAs Outside Operating Hours

It is possible for ETAs to appear on the API response (illustrated below) even though buses are not operating at the point of API call. Such scenarios include:

- a. Before first buses leave the Bus Interchanges / Depots in the mornings.
- b. When last buses at night are running behind schedule and yet to reach the terminating stops.
  - <Status> reflects "Not In Operation".
  - <EstimatedArrival> reflects ETA.

Under such scenarios, you should display the ETAs as opposed to "Not Operating Now". Only when there are no ETAs present, should appropriate messages be displayed – refer to advisement item 3.



#### 5. [Load] Colour Scheme Adoption

You may adopt this colour scheme to serve as visual indicators for the various loading values:

- [Green] Seats Available
- [Amber] Standing Available
- [Red] Limited Standing

You are given the flexibility for the manner in which you display the colours, i.e. colour bars, coloured timings, and accompanied with legends where appropriate and/or necessary.

#### 6. [Feature] Wheelchair Accessible Buses

You are given the flexibility to display any symbols or labels **&** to denote oncoming buses that are wheelchair accessible.



# 3.2 BUS ROUTES – SBST ROUTE INFO

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/SBSTRouteSet   |        |
|--------------------|---|--------|
| Description        | Lists information for each bus stop along bus routes operated by SBS Transit, including Bus Stop code, first and last bus absolute arrival times. |        |
| <b>Update Freq</b> | Quarterly   |        |
| Attributes         | Description   | Sample |
| SR_SVC_NUM         | The bus service number  | 10     |
| SR_SVC_DIR         | The direction in which the bus travels (1 or 2), loop services only have 1 direction  | 1      |
| SR_ROUT_SEQ        | The i-th bus stop for this route  | 1      |
| SR_BS_CODE         | Bus stop reference code   | 75009  |
| SR_DISTANCE        | Distance travelled by bus from starting location (in kilometres)  | 0      |
| SR_FST_WD          | First bus timing, weekday   | 0500   |
| SR_LST_WD          | Last bus timing, weekday  | 2300   |
| SR_FST_SAT         | First bus timing, Saturday  | 0500   |
| SR_LST_SAT         | Last bus timing, Saturday   | 2300   |
| SR_FST_SUN         | First bus timing, Sunday  | 0500   |
| SR_LST_SUN         | Last bus timing, Sunday   | 2300   |



## 3.3 BUS ROUTES – SMRT ROUTE INFO

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/SMRTRouteSet  |        |
|--------------------|--|--------|
| Description        | Lists information for each bus stop along bus routes operated by SMRT, including Bus Stop code, first and last bus absolute arrival times. |        |
| <b>Update Freq</b> | Quarterly  |        |
| Attributes         | Description  | Sample |
| SR_SVC_NUM         | The bus service number   | 106    |
| SR_SVC_DIR         | The direction in which the bus travels (1 or 2), loop services only have 1 direction   | 1      |
| SR_ROUT_SEQ        | The i-th bus stop for this route   | 1      |
| SR_BS_CODE         | Bus stop reference code  | 43009  |
| SR_DISTANCE        | Distance travelled by bus from starting location (in kilometres)   | 0      |
| SR_FST_WD          | First bus timing, weekday  | 0500   |
| SR_LST_WD          | Last bus timing, weekday   | 2300   |
| SR_FST_SAT         | First bus timing, Saturday   | 0500   |
| SR_LST_SAT         | Last bus timing, Saturday  | 2300   |
| SR_FST_SUN         | First bus timing, Sunday   | 0500   |
| SR_LST_SUN         | Last bus timing, Sunday  | 2300   |



## 3.4 BUS ROUTES – SBST SERVICE INFO

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/SBSTInfoSet  |                   |  |
|--------------------|---|-------------------|--|
| Description        | Lists information for bus services operated by SBS Transit, including: start and stop locations, and frequency of dispatches for peak and nonpeak hours in the mornings (AM) and evenings (PM). |                   |  |
| <b>Update Freq</b> | Quarterly   |                   |  |
| Attributes         | Description   | Sample            |  |
| SI_SVC_NUM         | The bus service number  | 107M              |  |
| SI_SVC_DIR         | The direction in which the bus travels (1 or 2), loop services only have 1 direction  | 1                 |  |
| SI_SVC_CAT         | Category of the SBS bus service:<br>EXPRESS, FEEDER, INDUSTRIAL,<br>TOWNLINK, TRUNK, 2 TIER FLAT FEE,<br>FLAT FEE \$1.10 (or \$1.90, \$3.50, \$3.80)  | TRUNK             |  |
| SI_BS_CODE_ST      | Bus stop code for starting location   | 64009             |  |
| SI_BS_CODE_END     | Bus stop code for ending location (similar as starting for loop services)   | 64009             |  |
| SI_FREQ_AM_PK      | Freq of dispatch for AM Peak<br>0630H - 0830H (range in minutes)  | 14-17             |  |
| SI_FREQ_AM_OF      | Freq of dispatch for AM Off-Peak<br>0831H - 1659H (range in minutes)  | 10-16             |  |
| SI_FREQ_PM_PK      | Freq of dispatch for PM Peak<br>1700H - 1900H (range in minutes)  | 12-15             |  |
| SI_FREQ_PM_OF      | Freq of dispatch for PM Off-Peak after 1900H (range in minutes)   | 12-15             |  |
| SI_LOOP            | Location at which the bus service loops, empty if not a loop service  | Raffles Boulevard |  |



### 3.5 BUS ROUTES – SMRT SERVICE INFO

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/SMRTInfoSet  |        |  |
|--------------------|---|--------|--|
| Description        | Lists information for bus services operated by SMRT, including: start and stop locations, and frequency of dispatches for peak and non-peak hours in the mornings (AM) and evenings (PM). |        |  |
| <b>Update Freq</b> | Quarterly   |        |  |
| Attributes         | Description   | Sample |  |
| SI_SVC_NUM         | The bus service number  | 106    |  |
| SI_SVC_DIR         | The direction in which the bus travels (1 or 2), loop services only have 1 direction  | 2      |  |
| SI_SVC_CAT         | Category of the SMRT bus service:<br>EXPRESS, FEEDER, INTRA-TOWN,<br>NIGHT RIDER, TRUNK, FLAT FARE<br>\$1.70 (or \$2.00, \$3.50, \$4.00, \$5.00)  | TRUNK  |  |
| SI_BS_CODE_ST      | Bus stop code for starting location   | 43009  |  |
| SI_BS_CODE_END     | Bus stop code for ending location (similar as starting for loop services)   | 03239  |  |
| SI_FREQ_AM_PK      | Freq of dispatch for AM Peak<br>0630H - 0830H (range in minutes)  | 04-10  |  |
| SI_FREQ_AM_OF      | Freq of dispatch for AM Off-Peak<br>0831H - 1659H (range in minutes)  | 06-13  |  |
| SI_FREQ_PM_PK      | Freq of dispatch for PM Peak<br>1700H - 1900H (range in minutes)  | 09-14  |  |
| SI_FREQ_PM_OF      | Freq of dispatch for PM Off-Peak<br>after 1900H (range in minutes)  | 10-14  |  |
| SI_LOOP            | Location at which the bus service loops, empty field if not a loop service  |        |  |



# 3.6 BUS STOPS

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/BusStopCodeSet       |                     |
|--------------------|---|---------------------|
| Description        | Lists details for all bus stops in Singapore (code, road, description). |                     |
| <b>Update Freq</b> | Quarterly   |                     |
| Attributes         | Description   | Sample              |
| Code               | A unique 5-digit identifier for each physical bus stop                  | 01012               |
| Road               | The road on which the bus stop is located                               | Victoria St         |
| Description        | Landmarks (if any) to aid in identifying the bus stop                   | Hotel Grand Pacific |



# 3.7 TAXI AVAILABILITY

| API URL     | http://datamall2.mytransport.sg/ltaodataservice/TaxiAvailability  |          |  |
|-------------|---|----------|--|
| Description | API that returns you the location coordinates of all Taxis that are available for hire at present moment. Does not include "Hired" or "Busy" Taxis. |          |  |
| Update Freq | 2 mins  |          |  |
| Response    |   |          |  |
| Attributes  | Description   | Sample   |  |
|             |   | Sample   |  |
| Latitude    | Latitude location coordinates.  | 1.336980 |  |



## 3.8 CARPARK AVAILABILITY

| Dataset URL | http://datamall.mytransport.sg/ltaodataservice.svc/CarParkSet  |             |
|-------------|--|-------------|
| Description | Lists no. of available carpark lots for major shopping malls and developments in Orchard, Marina, HarbourFront, Jurong Lake District.  (Note: list of carparks in this dataset do not correlate to those listed in Carpark Rates – Static Data listed on MyTransport.SG Portal.) |             |
| Update Freq | 1 minute   |             |
| Attributes  | Description  | Sample      |
| CarParkID   | A unique code for this carpark   | 1           |
| Area        | Area of development / building - Marina - Orchard - Harbfront - JurongLakeDistrict   | Marina      |
| Development | Building or landmark where carpark is situated   | Suntec City |
| Lots        | Number of lots available at point of data retrieval.   | 173         |
| Latitude    | Latitude map coordinates.  | 1.2935      |
| Longitude   | Longitude map coordinates.   | 103.8527    |



# 3.9 ERP RATES

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/ERPRateSet   |  |
|--------------------|---|--|
| Description        | Lists ERP rates for all vehicle types across all timings – weekdays / weekends / public holidays. This dataset does not change / refresh in real-time.  (Note: This dataset does not correlate to those listed in ERP Gantries – Static (Geospatial) Data listed on MyTransport.SG Portal.) |  |
| <b>Update Freq</b> | (whenever there are updates)  |  |
| Attributes         | <b>Description</b> Sample   |  |
| VCCType            | Type of vehicles pertaining to this ERP charge.   | Passenger Cars/Light Goods<br>Vehicles/Taxis |
|                    | Classification types: - Passenger Cars - Motorcycles - Light Goods Vehicles - Heavy Goods Vehicles - Very Heavy Goods Vehicles - Taxis  |  |
| DayType            | Available types: - Weekdays - Saturdays - Sundays - Public Holidays - Eve of Major Public Holidays  | Weekdays                                     |
| EffectiveDate      | Rate is effective as of this date YYYY-MM-DD  | 2014-02-03                                   |
| StartTime          | Start time for this ERP rate  | 07:30  |
| EndTime            | End time for this ERP rate  | 07:35  |
| ZoneID             | Zone in which this ERP charge presides  | CT1  |
| ChargeAmount       | Chargeable amount   | 1  |



# **3.10 ESTIMATED TRAVEL TIMES**

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/TravelTimeSet  Lists estimated travel times on expressways in segments. |                     |
|--------------------|--|---------------------|
| Description        |  |                     |
| <b>Update Freq</b> | 5 minutes  |                     |
| Attributes         | Description Sample   |                     |
| Name               | Expressway   | AYE                 |
| Direction          | Direction of travel:   | 1                   |
|                    | 1 – Travelling from east to west,  |                     |
|                    | or south to north.   |                     |
|                    | 2 – Travelling from west to east,  |                     |
|                    | or north to south.   |                     |
| FarEndPoint        | The final end point of this whole  | TUAS CHECKPOINT     |
|                    | expressway in current direction  |                     |
|                    | of travel  |                     |
| StartPoint         | Start point of this current  | AYE/MCE INTERCHANGE |
|                    | segment  |                     |
| EndPoint           | End point of this current  | TELOK BLANGAH RD    |
|                    | segment  |                     |
| EstimatedTime      | Estimated travel time in minutes   | 1                   |



# **3.11 FAULTY TRAFFIC LIGHTS**

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/AlarmInfoSet   |  |
|--------------------|---|--|
| Description        | Lists alerts of traffic light signals that are <u>currently</u> faulty, or <u>currently</u> undergoing scheduled maintenance. |  |
| <b>Update Freq</b> | 2 minutes – whenever there are updates  |  |
| Attributes         | <b>Description</b> Sample   |  |
| AlarmID            | Technical alarm ID  | GL703034136  |
| NodeID             | A unique code to represent each unique traffic light node   | 703034136  |
| Туре               | Type of the technical alarm - 4 (Blackout) - 13 (Flashing Yellow)   | 13   |
| StartDate          | YYYY-MM-DD HH:MM:SS.ms  | 2014-04-12 01:58:00.0  |
| EndDate            | YYYY-MM-DD HH:MM:SS.ms<br>(empty field if this is not a<br>scheduled maintenance)   |  |
| Message            | Canning Message   | (23/1)8:58 Flashing Yellow at<br>Bedok North Interchange/Bedok<br>North Street 1 Junc. |



# **3.12 ROAD OPENINGS**

| Dataset URL | http://datamall.mytransport.sg/ltaodataservice.svc/<br>PlannedRoadOpeningSet |   |
|-------------|--|---|
| Description | Lists planned road openings.   |   |
| Update Freq | 24 hours – whenever there are updates  |   |
| Attributes  | <b>Description</b> Sample  |   |
| RoadID      | ID for this road opening event   | RMI1495   |
| StartDate   | Start date for the works performed for this road opening                     | 2013-09-01  |
| EndDate     | End date for works performed for this road opening                           | 2014-02-28  |
| SvcDept     | Department or company performing this road work                              | CITYNET INFRASTRUCTURE MANAGEMENT PRIVATE LIMITED |
| RoadName    | Road name in which this road work is being performed                         | BEDOK RESERVOIR CRESCENT                          |
| Other       | Additional information or messages   | For details, please call 96502572                 |



## 3.13 ROAD WORKS

| Dataset URL | http://datamall.mytransport.sg/ltaodataservice.svc/RoadWorkSet |   |
|-------------|--|---|
| Description | Lists road works currently being carried out.                  |   |
| Update Freq | 24 hours – whenever there are updates                          |   |
| Attributes  | <b>Description</b> Sample                                      |   |
| RoadID      | ID for this road work  | RMAPP-201211-0593                             |
| StartDate   | Start date for the works performed for this road opening       | 2012-11-28T00:00:00                           |
| EndDate     | End date for works performed for this road opening             | 2014-12-29T00:00:00                           |
| SvcDept     | Department or company performing this road work                | SP POWERGRID LTD –REGIONAL<br>NETWORK CENTRAL |
| RoadName    | Road name in which this road work is being performed.          | ADMIRALTY DRIVE                               |
| Other       | Additional information or messages.                            | For all details, please call 61234567.        |



## **3.14 TRAFFIC IMAGES**

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/CameraImageSet   |   |
|--------------------|---|---|
| Description        | Contains links to images of live traffic conditions along expressways in Singapore, and the Woodlands & Tuas Checkpoints. |   |
| <b>Update Freq</b> | 1 to 5 minutes  |   |
| Attributes         | Description   | Sample  |
| CameraID           | A unique ID for this camera   | 5795  |
| Latitude           | Latitude map coordinates  | 1.3260248220968   |
| Longitude          | Longitude map coordinates   | 103.905625036063  |
| ImageURL           | URL for downloading this image.   | http://datamall.cloudapp.net/GetCameraImage.ashx? GUID=23a581d3-67c3-457b-8a24-baeed5ea896b |



# **3.15 TRAFFIC INCIDENTS**

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/IncidentSet  |  |
|--------------------|---|--|
| Description        | Lists traffic incidents <u>currently</u> occurring on the roads, including Accidents, Vehicle Breakdowns, Obstacles, Road Blocks, Traffic Diversions etc. |  |
| <b>Update Freq</b> | 2 minutes – whenever there are updates  |  |
| Attributes         | Description Sample  |  |
| Туре               | Incident Types: - Accident - Road Works - Vehicle Breakdown - Weather - Obstacle - Road Block - Heavy Traffic - Misc Diversion - Unattended Vehicle       | Accident   |
| Latitude           | Latitude map coordinates for the start point of this road incident  | 103.845422837  |
| Longitude          | Longitude map coordinates for the start point of this incident  | 1.32958592117  |
| Message            | Description message for this incident   | (23/1)10:12 Accident in the CTE<br>Tunnel (towards AYE) at<br>Havelock Exit. |



## **3.16 TRAFFIC SPEED BANDS**

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/TrafficSpeedBandSet  |                   |  |
|--------------------|---|-------------------|--|
| Description        | Current traffic speeds on expressways and arterial roads, expressed in speed bands.   |                   |  |
|                    | (Note: Total no. of speed band records returned from API-calls may v from 4,000 to 58,000. Expect updates to this dataset from May 2015.) |                   |  |
| <b>Update Freq</b> | 5 minutes   |                   |  |
| Attributes         | <b>Description</b> Sample   |                   |  |
| LinkID             | Unique ID for this stretch of road  | 103003846         |  |
| RoadName           | Road name.  | JALAN LIMAU MANIS |  |
| RoadCategory       | A – Expressways   | E                 |  |
|                    | B – Major Arterial Roads  |                   |  |
|                    | C and below – minor or other roads.   |                   |  |
| Band               | Speed Band Information. Total: 4  | 3                 |  |
|                    | 1 – indicates speed range from 0 < 20   |                   |  |
|                    | 2 – indicates speed range from 20 < 40  |                   |  |
|                    | 3 – indicates speed range from 40 < 60  |                   |  |
|                    | 4 – indicates speed range > 60  |                   |  |
| MinimumSpeed       | Minimum speed in KM/H   | 40                |  |
| MaximumSpeed       | Maximum speed in KM/H   | 59                |  |
| Location           | Latitude and Longitude map  | 1.32482526143164  |  |
|                    | coordinates for start and end points  | 103.949634931859  |  |
|                    | for this stretch of road.   | 1.32463484279186  |  |
|                    |   | 103.949358833909  |  |



# **3.17 VMS / EMAS**

| Dataset URL        | http://datamall.mytransport.sg/ltaodataservice.svc/VMSSet  |                    |
|--------------------|--|--------------------|
| Description        | Lists traffic advisories (via variable message services) concerning current traffic conditions that are displayed on EMAS signboards along expressways and arterial roads. |                    |
| <b>Update Freq</b> | 2 minutes  |                    |
| Attributes         | Description  | Sample             |
| EquipmentID        | EMAS equipment ID  | VMS_0026           |
| Message            | Variable Message being displayed on the EMAS display.  | SPEED CAMERA AHEAD |
| Latitude           | Latitude map coordinates of electronic signboard.  | 1.3520126023225627 |
| Longitude          | Longitude map coordinates of electronic signboard.   | 103.8996617438024  |