NSW Road Traffic Volume Counts

DATASET DOCUMENTATION

June 2017
v1.0

1. Dataset name

NSW Road Traffic Volume counts

2. Custodian

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3. Dataset overview

3.1. Introduction

The Traffic Volume Viewer is a map based web application that allows you to browse and search for available traffic volume count data in NSW. Data is available from 2006 up to the current year.

The map shows the locations of traffic count stations, which report the number of vehicles only, and traffic classifier stations, which count the vehicles and differentiate between light and heavy vehicles. For many classifier stations, a percentage of traffic comprised of heavy vehicles is available.

The information displayed in the Traffic Volume Viewer is now available as a dataset for use by public and industry.

3.2. How is data collected?

Traffic volume information is collected via permanent and sample roadside traffic collection devices.

Roads and Maritime Services has approximately 600 permanent roadside collection device stations which continuously collect traffic information 365 days per year. There are also numerous sample roadside collection device stations across NSW, which collect information on a short term basis, usually over a two week period.

Information collected from these devices includes traffic volume counts, speed and classification (vehicle type) depending on the technology available at each site.

3.3. Data quality and suitability

3.3.1. Accuracy

The underlying data used to calculate the Annual Average Daily Traffic (AADT) is the hourly volume from each traffic collection station. This means each traffic collection station is expected to provide 24 observations per day. For the data provided to be considered reliable, it needs to pass through a number of data quality checks.

The first check is the regularity of data, quantifiable by at least 19 hourly observations per day. If it has not provided 19 hourly observations on a specific day, then that day is excluded from the analysis.

The second check relates to the consistency of the volume being recorded.

- At least one figure for each day of the week within each month is required (a minimum of 84 figures per year - 7 days x 12months).
- The daily volume from each traffic collection station is then compared to the average for that day of the week in the month. For example, Monday 3 June 2013 is compared to the average volume figure for all Mondays in June 2013. If the daily volume is greater or less than 20% of the average, that specific Monday is then excluded from the analysis, as the figure is considered inconsistent.

3.3.2. Suitability and cautions

Traffic data is collected from varying devices located on the road network. The road network is one of the harshest environments and while devices are built to withstand this harsh environment, each counter demonstrates reactive and unreactive behaviour in response to the environment. Known issues can include double counting in highly congested areas, unreliable counts in weather, progressive count errors over long periods where the battery or power source has been compromised. Data processing has been incorporated to counteract known errors and possible unknown counter faults.

When a traffic collection station is also a classifier, it will provide observations for a variety of different vehicle classes per hour, including light and heavy vehicles. It is possible to not have an observation in every vehicle class for every hour. To provide an indication of the data quality for the traffic collection stations that classify, the data quality check for the number of observations focuses on light vehicles only, as heavy vehicle observations can be intermittent during the day.

Although every effort has been made to ensure the quality of the data, the NSW Roads and Maritime Services cannot guarantee the accuracy of the data and does not accept responsibility for any consequences arising from its use.

3.3.3. Geographic detail

Data covers the following geographic area(s): State

The data are available at the following levels of geography: Locality (Suburb), Postcode, Address (street number & name)

3.3.4. Reference period

Period for which the data were obtained: 01/01/2006 – ongoing

3.3.5. Timing

Updates and revisions: If errors are identified, data is revised and the revision is publicised.
The data became available (i.e. released or published) on: March 2016.

3.3.6. Frequency of production and release

Traffic Collection Stations collect traffic data daily and aggregation of this data to produce the Traffic Volume Viewer data sets is produced monthly.

4. Dataset description

4.1. Permanent and hourly sample traffic count

This table provides hourly traffic count for each station post 2006 at a daily level.

Table names: road_traffic_counts_hourly_permanent *and* road_traffic_counts_hourly_sample

Variable name	Data type	Length	Value definition	Domain values
STATION_KEY	Number		Unique Station Key	Refer 5.1
TRAFFIC_DIRECTION_SEQ	Number		0: COUNTER 1: PRESCRIBED 2: BOTH	Refer 5.2
CARDINAL_DIRECTION_SEQ	Number		1: NORTH 3: EAST 5: SOUTH 7: WEST 9: NORTHBOUND AND SOUTHBOUND 10: EASTBOUND AND WESTBOUND	Refer 5.3
CLASSIFICATION_SEQ	Number		0: UNCLASSIFIED 1: ALL VEHICLES 2: LIGHT VEHICLES 3: HEAVY VEHICLES -9: MISSING	Refer 5.4
DATE	Date	8	YYYY-MM-DD	
YEAR	Number		>2006	
MONTH	Number		1 -12. Numerical value of the month.	
DAY_OF_WEEK	Number		1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday 7: Sunday	
PUBLIC_HOLIDAY	Boolean		0: Non Public Holiday 1: Public Holiday	
SCHOOL_HOLIDAY	Boolean		0: Non School Holiday 1: School Holiday	
DAILY_TOTAL	Number		Total sum of traffic volume for 24 hours	
HOUR_00	Number		Traffic volume count for time between 00:00-00:59	
HOUR_01	Number		Traffic volume count for time between 01:00-0:159	
HOUR_02	Number		Traffic volume count for time between 02:00-02:59	
HOUR_03	Number		Traffic volume count for time between 03:00-03:59	
HOUR_04	Number		Traffic volume count for time between 04:00-04:59	
HOUR_05	Number		Traffic volume count for time between 05:00-05:59	
HOUR_06	Number		Traffic volume count for time between 06:00-06:59	
HOUR_07	Number		Traffic volume count for time between 07:00-07:59	
HOUR_08	Number		Traffic volume count for time between 08:00-08:59	
HOUR_09	Number		Traffic volume count for time between 09:00-09:59	
HOUR_10	Number		Traffic volume count for time between 10:00-10:59	
HOUR_11	Number		Traffic volume count for time between 11:00-11:59	
HOUR_12	Number		Traffic volume count for time between 12:00-12:59	
HOUR_13	Number		Traffic volume count for time between 13:00-13:59	
HOUR_14	Number		Traffic volume count for time between 14:00-14:59	
HOUR_15	Number		Traffic volume count for time between 15:00-15:59	
HOUR_16	Number		Traffic volume count for time between 16:00-16:59	
HOUR_17	Number		Traffic volume count for time between 17:00-17:59	
HOUR_18	Number		Traffic volume count for time between 18:00-18:59	
HOUR_19	Number		Traffic volume count for time between 19:00-19:59	
HOUR_20	Number		Traffic volume count for time between 20:00-20:59	
HOUR_21	Number		Traffic volume count for time between 21:00-21:59	
HOUR_22	Number		Traffic volume count for time between 22:00-22:59	
HOUR_23	Number		Traffic volume count for time between 23:00-23:59	

4.2. Summary of annual average daily traffic count

This table provides the general description of traffic station, traffic direction, date of recording and the quality of data.

Table name: road_traffic_counts_yearly_summary

Variable Name	Data Type	Length	Value Definition	Domain Values
STATION_KEY	Number		Unique Station Key	Refer 5.1
STATION_ID	String	50	The ID of the Traffic Counter Station	
TRAFFIC_DIRECTION_SEQ	Number		0: COUNTER 1: PRESCRIBED 2: BOTH	Refer 5.2
TRAFFIC_DIRECTION_NAME	String	50	0: COUNTER 1: PRESCRIBED 2: BOTH	
CARDINAL_DIRECTION_SEQ	Number		1: NORTH 3: EAST 5: SOUTH 7: WEST 9: NORTHBOUND AND SOUTHBOUND 10: EASTBOUND AND WESTBOUND	Refer 5.3
CARDINAL_DIRECTION_NAME	String	50	1: NORTH 3: EAST 5: SOUTH 7: WEST 9: NORTHBOUND AND SOUTHBOUND 10: EASTBOUND AND WESTBOUND	
CLASSIFICATION_SEQ	Number		0: UNCLASSIFIED 1: ALL VEHICLES 2: LIGHT VEHICLES 3: HEAVY VEHICLES -9: Masked classifier as counter	Refer 5.4
CLASSIFICATION_TYPE	String	14	0: UNCLASSIFIED 1: ALL VEHICLES 2: LIGHT VEHICLES 3: HEAVY VEHICLES -9: Masked classifier as counter	Refer 5.4
COUNT_TYPE	String	13	TRAFFIC COUNT	
YEAR	Number		Year	
PERIOD	String	15	ALL DAYS: 24 hours AM PEAK: 6-10AM PM PEAK: 3-7PM OFF PEAK: 10AM-3PM WEEKDAYS: Monday - Friday WEEKENDS: Saturday - Sunday PUBLIC HOLIDAY: NSW Public Holidays	Refer 5.6
PARTIAL_YEAR	Boolean		0: Non Partial Year 1: Partial Year	
LATEST_DATE	Date		For incomplete years, this will show the latest date of the partial year	
TRAFFIC_COUNT	Number		Average traffic count for the period	
DATA_START_DATE	Date		The date when data started recording. This usually applies to sample counters.	
DATA_END_DATE	Date		The date when data finished recording. This usually applies to sample counters.	
DATA_DURATION	Number		The number of day's data was recorded. This usually applies to sample counters.	
DATA_AVAILABILITY	Number		Percentage of available data within the recorded duration for a single direction. -1: the total sum of traffic volume in both directions.	
DATA_RELIABILITY	Number		Percentage of useful data of available data for a single direction. -1: the total sum of traffic volume in both directions.	
DATA_QUALITY_INDICATOR	Number		0 Data has passed quality checks to be included in the dataset 1 Data did not pass quality checks and has not been included in the dataset	

4.3. Road traffic volumes collection station reference table

This table provides a general description of the road traffic volume collection station
e.g. Geospatial coordinates, road name, suburb, postcode, device type, road number, road type including the data quality rating.

Table name: road_traffic_counts_station_reference

Variable Name	Data Type	Length	Value Definition	Domain Values
THE_GEOM	Geometry		WGS84 Point Geometry	
STATION_KEY	Number		Unique Station Key	Refer 5.1
STATION_ID	String	51	The ID of the traffic collection station	
NAME	String	71	Name of the road otherwise specified	
ROAD_NAME	String	8000	Road name	
FULL_NAME	String	152	Road name, cardinal direction from the intersection, and nearest intersecting road	
COMMON_ROAD_NAME	String	100	Common (localised) road name	
SECONDARY_NAME	String	79	Cardinal direction from intersection and nearest intersecting road	
ROAD_NAME_BASE	String	50	Road name without street type	
ROAD_NAME_TYPE	String	20	Street type	
INTERSECTION	String	70	Nearest intersecting road	
DISTANCE_TO_INTERSECTION	Number		Distance in metres to nearest intersecting road	
ROAD_NUMBER	String	7	RMS classified road number	
LINK_NUMBER	String	4	RMS classified road-link number	
MAB_WAY_TYPE	String	20	MAB Road type: A, M, B	
MAB_WAY_NUMBER	String	10	MAB number	
MAB_IDENTIFIER	String	5	MAB Road type and number	
ROAD_FUNCTIONAL_HIERARCHY	String	100	Local, Primary, Arterial, Motorway, Dedicated Bus way, Urban service lane, Sub-Arterial Road, Distributor Road	
ROAD_ON_TYPE	String	50	On Culvert, On Dam Wall, On Bridge, In Tunnel and On Ground	
LANE_COUNT	String	100	Number of lanes of road including Unknown Lanes, One Lane, and Two or More Lanes	
ROAD_CLASSIFICATION_TYPE	String	100	Type of road classification e.g. Freeway, Street, Deviation, Highway, Road	Refer 5.7
ROAD_CLASSIFICATION_ADMIN	String	100	Administration of road classification: Regional, ,Local and State	
RMS_REGION	String	20	RMS region locations: Hunter, Western, Southern, ACT, Northern, South West and Sydney	
LGA	String	40	Local Government Area	
SUBURB	String	40	NSW suburb	
POST_CODE	String	12	Postcode	
DEVICE_TYPE	String	100	Recording device type	Refer 5.8
HEAVY_VEHICLE_CHECKING_STATION	Boolean		0: Non Heavy Vehicle Checking Station 1: Heavy Vehicle Checking Station	
PERMANENT_STATION	Boolean		0: Non-Permanent Station 1: Permanent Station	
VEHICLE_CLASSIFIER	Boolean		0: Non Vehicle Classifier 1: Vehicle Classifier	
LAMBERT_EASTING	Number		NSW Lambert Coordinates System	
LAMBERT_NORTHING	Number		NSW Lambert Coordinates System	
WGS84_LATITUDE	Number		WGS84 Coordinate System	
WGS84_LONGITUDE	Number		WGS84 Coordinate System	
DIRECTION_SEQ	Number		0: BOTH 1: NORTH 3: EAST 5: SOUTH 7: WEST 9: NORTHBOUND AND SOUTHBOUND 10: EASTBOUND AND WESTBOUND	Refer 5.3
QUALITY_RATING	Number		4: One or more years of data for either one or both directions has been excluded for quality reasons 5: No data has been excluded due to quality	

			purposes.	

5. Dataset domain values

5.1. Station key

Unique Station Key sourced from RMS data warehouse. Also parent Station Key is produced to combine paired single direction station.
i.e. 2 stations with separate single directions within the same proximity.

5.2. Traffic direction sequence

The prescribed direction of the road is the nominated direction in which the road is described. The prescribed direction will match the description of the road as per the NSW Gazette.

Code	Description
0	Counter-prescribed direction
1	Prescribed direction
2	Both directions

5.3. Cardinal direction sequence

The four cardinal directions or cardinal points are the directions of north, east, south and west, commonly denoted by their initials: N, E, S, W. East and west are at right angles to north and south, with east being in the clockwise direction of rotation from north and west being directly opposite east.

Code	Description
1	North
3	East
5	South
7	West
9	Northbound and Southbound
10	Eastbound and Westbound

5.4. Classification type/sequence

Data from traffic collection stations has been aggregated into four classifications based on the type of data the station collects. Where a counter classifies vehicles and the heavy vehicle counts have passed quality checks, the classifier will have three classification types (1, 2, 3). Where a traffic collection station does not classify vehicles, the counter will only have one classification type (0).

Code	Description
0	Unclassified
1	All vehicles
2	Light vehicles
3	Heavy Vehicles

5.5. Cardinal direction name

The four cardinal directions or cardinal points are the directions of north, east, south and west, commonly denoted by their initials: N, E, S, and W.

Code	Description
N	North
E	East
S	South
W	West

5.6. Period

Traffic volume from all days of the week including public holidays or weekends is classified into following time intervals.

Code	Description
All days (AADT)	This includes volume from all days of the week with no exclusions for public holidays or weekends
Weekdays (AAWT)	This includes volume from Monday through to Friday
AM Peak	Traffic volume during the hours of 6am to 10am
PM Peak	Traffic volume during the hours of 3pm to 7pm
Off Peak	All hours of the day excluding 6am to 10am and 3pm to 7pm
Weekends (AAWET)	Traffic volume for Saturdays and Sundays only
Public Holidays (AAPHT)	Traffic volume from all Public Holidays of a year

5.7. Road classification type

Description
Highway
Road
Street
Parade
Drive
Way
Motorway
Bypass
Crescent
Avenue
Distributor
Close
Expressway
Parkway

5.8. Device type

Various types of recording devices:

Description
Trafficorder Loop Counter
Trafficorder Tube Axle pair Counter
Trafficorder Dual Tube Classifier
Excel LPL (loop-piezo-loop)
Excel LI (loop induction)
Sensys
TIRTL (the infra-red traffic logger)
Metro count PP (piezo-piezo)

6. Usage Examples

Example 1

Calculate the total traffic volume for light vehicles from 6am to 9am (AM Peak), Monday to Friday, public holidays only, in January and February 2016, for Sydney Harbour Bridge, for vehicles travelling in the southbound direction.

Request

```
SELECT station_id, traffic_direction_seq,date,(hour_06+hour_07+hour_08) as "am_peak_total"
FROM road_traffic_counts_hourly_permanent
LEFT JOIN road_traffic_counts_station_reference
ON road_traffic_counts_station_reference.station_key =
road_traffic_counts_hourly_permanent.station_key
WHERE station_id='SHB' AND year = '2016' AND  public_holiday is true AND day_of_week BETWEEN 1 AND 5
AND classification_seq = 2 and month in (1,2,3) AND cardinal_direction_seq = 5
ORDER BY date
```

Response


```
{
  "rows": [
    {
      "station_id": "SHB",
      "traffic_direction_seq": 0,
      "date": "2016-01-26T00:00:00Z",
      "am_peak_total": 1807
    },
    {
      "station_id": "SHB",
      "traffic_direction_seq": 0,
      "date": "2016-03-28T00:00:00Z",
      "am_peak_total": 382
    }
  ],
  "time": 1.511,
  "fields": {
    "station_id": {
      "type": "string"
    },
    "traffic_direction_seq": {
      "type": "number"
    },
    "date": {
      "type": "date"
    },
    "am_peak_total": {
      "type": "number"
    }
  },
  "total_rows": 2
}
```

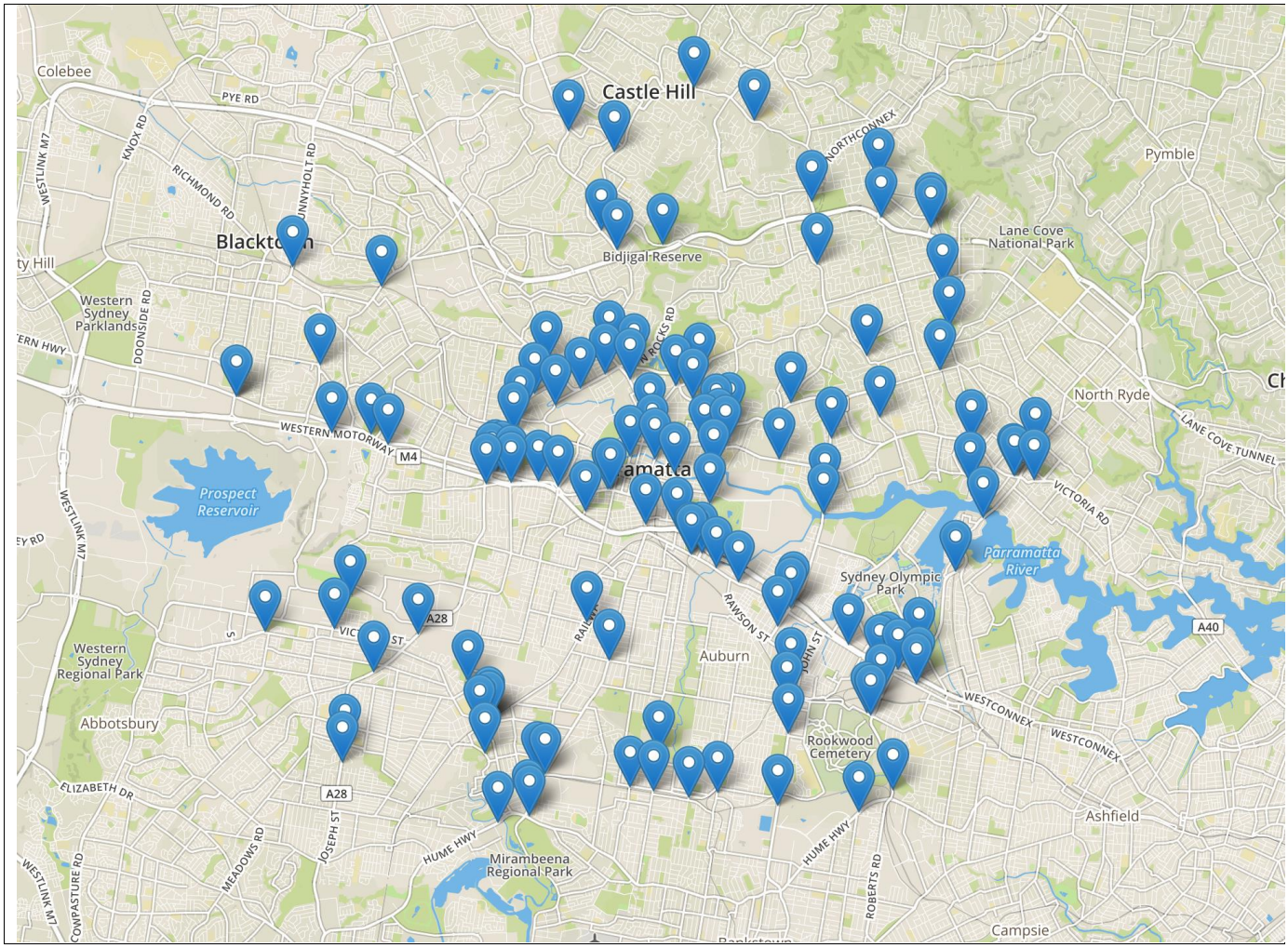
Example 2

Return all traffic volume collection stations that are within 10km of a given location in Parramatta (WGS84 - 33.816228, 150.999919) and export to a named GeoJSON file.

Request

```
SELECT * FROM road_traffic_counts_station_reference WHERE ST_DWithin(the_geom, ST_MakePoint(150.999919,-33.816228)::geography, 10000)&format=GEOJSON&filename=TrafficCountingStations
```

Response/Output



Example 3

Return the Annual Average Daily Traffic (AADT) for all traffic collection stations within Parramatta suburb for the PM peak and export to a named CSV file.

Request

```
SELECT NAME,LGA,SUBURB,ROAD_FUNCTIONAL_HIERARCHY,WGS84_LATITUDE,WGS84_LONGITUDE,SUMM.*
FROM road_traffic_counts_station_reference REF
JOIN road_traffic_counts_yearly_summary SUMM ON REF.STATION_KEY = SUMM.STATION_KEY WHERE SUBURB = 'Parramatta'
AND PERIOD = 'PM PEAK'
AND TRAFFIC_DIRECTION_SEQ IN ('1','2')
&format=CSV&filename=ParramattaPM
```

Response/Output

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	name	lga	suburb	road_funct	wgs84_lati	wgs84_lon	cartodb_id	the_geom	the_geom_	record_id	station_ke	station_id	traffic_dire	traffic_dire	cardinal_di
2	Church Stre	Parramatta	Parramatta	Distributor	-33.8041	151.0058	58845			58845	57026	50017	1	PRESCRIBEI	1
3	Church Stre	Parramatta	Parramatta	Distributor	-33.8041	151.0058	58851			58851	57026	50017	2	PRESCRIBEI	9
4	Kissing Poi	Parramatta	Parramatta	Arterial Ro	-33.8043	151.0266	58863			58863	57030	50037	1	PRESCRIBEI	7
5	Kissing Poi	Parramatta	Parramatta	Arterial Ro	-33.8043	151.0266	58869			58869	57030	50037	2	PRESCRIBEI	10
6	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8077	151.0239	58881			58881	57031	50038	1	PRESCRIBEI	1
7	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8077	151.0239	58887			58887	57031	50038	2	PRESCRIBEI	9
8	Victoria Ro	Parramatta	Parramatta	Arterial Ro	-33.8088	151.0062	58899			58899	57033	50045	1	PRESCRIBEI	7
9	Victoria Ro	Parramatta	Parramatta	Arterial Ro	-33.8088	151.0062	58905			58905	57033	50045	2	PRESCRIBEI	10
10	Macarthur	Parramatta	Parramatta	Distributor	-33.8152	151.0124	59037			59037	57038	50091	1	PRESCRIBEI	5
11	Macarthur	Parramatta	Parramatta	Distributor	-33.8152	151.0124	59043			59043	57038	50091	2	PRESCRIBEI	9
12	O'connell S	Parramatta	Parramatta	Arterial Ro	-33.8113	151.0007	59055			59055	57040	50093	1	PRESCRIBEI	1
13	O'connell S	Parramatta	Parramatta	Arterial Ro	-33.8113	151.0007	59061			59061	57040	50093	2	PRESCRIBEI	9
14	Wilde Aver	Parramatta	Parramatta	Distributor	-33.8119	151.0072	62609			62609	57056	50375	1	PRESCRIBEI	1
15	Wilde Aver	Parramatta	Parramatta	Distributor	-33.8119	151.0072	62615			62615	57056	50375	2	PRESCRIBEI	9
16	Victoria Ro	Parramatta	Parramatta	Arterial Ro	-33.8088	151.0202	62627			62627	57058	50380	1	PRESCRIBEI	7
17	Victoria Ro	Parramatta	Parramatta	Arterial Ro	-33.8088	151.0202	62633			62633	57058	50380	2	PRESCRIBEI	10
18	Pennant St	Parramatta	Parramatta	Arterial Ro	-33.8045	151.0233	62645			62645	57059	50382	1	PRESCRIBEI	7
19	Pennant St	Parramatta	Parramatta	Arterial Ro	-33.8045	151.0233	62651			62651	57059	50382	2	PRESCRIBEI	10
20	Great West	Parramatta	Parramatta	Primary Ro	-33.8184	150.9954	62867			62867	57068	50396	1	PRESCRIBEI	7
21	Great West	Parramatta	Parramatta	Primary Ro	-33.8184	150.9954	62873			62873	57068	50396	2	PRESCRIBEI	10
22	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58449			58449	57019	49095	1	PRESCRIBEI	1
23	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58456			58456	57019	49095	1	PRESCRIBEI	1
24	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58463			58463	57019	49095	1	PRESCRIBEI	1
25	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58470			58470	57019	49095	1	PRESCRIBEI	1
26	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58477			58477	57019	49095	1	PRESCRIBEI	1
27	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58484			58484	57019	49095	1	PRESCRIBEI	1
28	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58491			58491	57019	49095	2	PRESCRIBEI	9
29	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58498			58498	57019	49095	2	PRESCRIBEI	9
30	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58505			58505	57019	49095	2	PRESCRIBEI	9
31	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58512			58512	57019	49095	2	PRESCRIBEI	9
32	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58519			58519	57019	49095	2	PRESCRIBEI	9
33	James Ruse	Parramatta	Parramatta	Arterial Ro	-33.8143	151.0225	58526			58526	57019	49095	2	PRESCRIBEI	9
34	Victoria Ro	Parramatta	Parramatta	Arterial Ro	-33.8091	151.0257	59249			59249	57042	50207	1	PRESCRIBEI	3
35	Victoria Ro	Parramatta	Parramatta	Arterial Ro	-33.8091	151.0257	59256			59256	57042	50207	1	PRESCRIBEI	3
36	Victoria Ro	Parramatta	Parramatta	Arterial Ro	-33.8091	151.0257	59263			59263	57042	50207	1	PRESCRIBEI	3
37	Victoria Ro	Parramatta	Parramatta	Arterial Ro	-33.8091	151.0257	59270			59270	57042	50207	1	PRESCRIBEI	3
38	Victoria Ro	Parramatta	Parramatta	Arterial Ro	-33.8091	151.0257	59277			59277	57042	50207	1	PRESCRIBEI	3
39	Victoria Ro	Parramatta	Parramatta	Arterial Ro	-33.8091	151.0257	59284			59284	57042	50207	1	PRESCRIBEI	3
40	Victoria Ro	Parramatta	Parramatta	Arterial Ro	-33.8091	151.0257	59291			59291	57042	50207	1	PRESCRIBEI	3

Example 4

Calculate the average traffic volume for May 2016 for all traffic collection stations, excluding public holidays, school holidays, and weekends.

Request

```
SELECT STATION_ID, TRAFFIC_DIRECTION_SEQ,
AVG(AMV.AM_VOL) AM_VOL
FROM (SELECT PERM.DATE, REF.STATION_ID, PERM.TRAFFIC_DIRECTION_SEQ,(HOUR_07+HOUR_08) AS AM_VOL
       FROM road_traffic_counts_station_reference REF JOIN road_traffic_counts_hourly_permanent PERM
       ON PERM.STATION_KEY = REF.STATION_KEY
       WHERE public_holiday is false
       AND SCHOOL_HOLIDAY = '0'
       AND DAY_OF_WEEK BETWEEN 1 AND 5
       AND YEAR = '2016'
       AND MONTH = 5) AMV
GROUP BY STATION_ID,TRAFFIC_DIRECTION_SEQ
ORDER BY STATION_ID, TRAFFIC_DIRECTION_SEQ
```

Response


```
{
  "rows": [
    {
      "station_id": "01003",
      "traffic_direction_seq": 0,
      "am_vol": 6633.45454545455
    },
    {
      "station_id": "01003",
      "traffic_direction_seq": 1,
      "am_vol": 7260.95454545455
    },
    {
      "station_id": "01004",
      "traffic_direction_seq": 0,
      "am_vol": 7270.68181818182
    },

… details removed for the purpose of brevity
{
      "station_id": "TMGSTC",
      "traffic_direction_seq": 0,
      "am_vol": 86.3636363636364
    }
  ],
  "time": 1.104,
  "fields": {
    "station_id": {
      "type": "string"
    },
    "traffic_direction_seq": {
      "type": "number"
    },
    "am_vol": {
      "type": "number"
    }
  },
  "total_rows": 599
}
```