



Trip Data Submissions Guide and Specifications

for

Passenger Transportation Data Warehouse

PTDW

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1.1	11/08/2019	Updated Error descriptions, date formats and XSD	Sateesh Boggarapu, Claus Gottschling, Doug Filteau
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1.3	01/07/2020	<p>Updated the trip data process diagram so the numbering matches the error.</p> <p>Explicitly state that the trailing 'z' in dates and date/time are mandatory.</p> <p>Additional constraint of trip data submission files has a Max trips of 200,000</p> <p>Clarify CSV ASCII; XML UTF-8 or UTF -16</p> <p>USERID, APPLICATIONID are licensee-controlled fields and are typically used via web service API. To indicate what licensee system/user submitted the file</p> <p>In rare cases, Trips of type refused can have a Drop Off date/time and location. These are now <i>optional</i> instead of <i>ignored</i>.</p> <p>Date/Time formats must have seconds – they cannot be omitted. Additionally, milliseconds can have one-digit precision.</p> <p>Updated the XSD and sample XML files in the appendix.</p>	James Smith
1.4	03/04/2020	<p>Edited content to reflect that midnight is part of the next day, not the current day when submitting. Previous documentation indicated the opposite; so, this document correction aligns with the code base.</p>	James Smith Komal Moorthy Sateesh Boggarapu

<i>Version</i>	<i>Date</i>	<i>Change Description</i>	<i>Authors</i>
		There are also significant error code updates (revisions, additions, deletions). Updated Abbreviations, XSD and sample XML/CSV files in the appendix	

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1 Introduction

This document is the guide and specification for Passenger Transportation License holders to submit Trip Data. It describes the details of the Trip Data Submission methods, process and data file formats to successfully submit trip data to the Passenger Transportation Data Warehouse.

There are two methods available to submit trip data: through the online portal or through a Web Service API. Regardless of the method of transferring the trip data the content and restrictions defined in this document must be met.

Trip Data Submission

The *VehicleSafetyBC* portal allows a PT license holder to authenticate using a Business BCeID. Once authenticated the user can submit either a CSV or XML data file that is their trip data submission. The data file specifications are defined in this document. Once submitted the file will be processed through several stages: *Submission*, *Confirmation*, *Validation* and *Verification*. If *Verification* is successful, the trip data will be loaded into the database and a final quality assurance phase that applies a set of quality control business rules to every trip provided. If no issues are found in the QA process, then the submission quality status is *Assured*. If one or more quality issues are found, then the status is *Flagged*. If any of the processing phases fail and the data set is not verified, then the QA status is *Failed*.

Service Type

Trip data submissions are *per service type*; this means that if a licensee has a PT Number with two licenses for distinct service types (for example, a taxi and TNS service type) then a submission must be made for both. In this example, a submission for Taxi and a submission for TNS.

Web Service

The Web Service API is a REST endpoint to be used for System-to-System information exchanges. The details of access, authorization and use of the API is provided in a companion document: *Trip Submission Web Service API*. Note that the API only accepts the XML file format. An advantage of using XML for the data file (for either a portal submission or API) is that the Ministry provides an XML Schema Document (XSD) that can be applied to the licensee's Trip data XML before attempting a submission. This gives the licensee a means to pre-validate the content before submitting to avoid simple errors. There is no comparable tool for CSV submissions.

Processing Status

The status of the processing is provided through notifications to a designated email address as well as a notifications summary on the portal. If the submission fails or is flagged for quality issues a specific error code is provided so that the licensee can determine the cause and resubmit.

Data File Submissions

Trip data submission can be made at any time of day and any day of the year (excluding notified service windows). The submission date range can be no smaller than a single day and no larger than one complete month. Any time span in between these amounts is also acceptable if the range of dates does not cross into another month (only data from one month can be included in the submission).

Files Size Limitations

CSV files can be no larger than 100 MB and XML files can be no larger than 500 MB. If the desired submission exceeds these limits, then the licensee should reduce the time span of the submission until the segmented files are all under these limits. In either file format there should be no more than 200,000 trips within a single file submission.

Trip Data Inclusion

The *vehicle assignment date/time* element determines if a trip is included in a specific date range. It is this date/time that must be within the bounds of the indicated submission date range. Midnight is the start of the following day; this means that the last moment of the day is 23:59:59. For example, if a submission is from Jan 5th to Jan 7th then the earliest vehicle assignment date time (and all other date times excluding hail) must be within Midnight Jan 5th and up to 23:59:59 Jan 7th.

The *vehicle assignment date/time* must also be within an identified shifts date/time range. Only the *Hail assignment D/T* can be before the shift start date/time; all other date time entries must be within the identified shift.

It is possible to have a shift start before the submission date range and the end of a shift beyond the end of the submission date range. However, it is not valid to have a shift that starts before the submission date range and ends after the submission date range. This shift, which would be greater than 24hrs, would be invalid and rejected.

Resubmission

The licensee can submit trip data that replaces data previously submitted. This could be to improve the quality of a previous submission or because the Licensee needs to correct errors accidentally submitted. If there are flagged issues in the submission that have been identified in the Quality Assurance stage of processing, then the licensee may re-submit a date range with corrections. In this case the entire data set for that date range defined in the submission will be overwritten in the warehouse and must be a complete set. The data warehouse will first remove all trips in the date range from the DB and then insert the new set; if the new set is empty then this has the same effect as deleting existing trips.

In this document the definition of the methods of submission, a detailed description of the ingestion and QA process, the file formats and specifications and error codes are provided. These are all subject to change but will be versioned with periods of multiple version compatibility as required.

2 Methods of Submitting Trip Data

There are two methods of trip data submission for a PT License holder: through the *VehicleSafetyBC* portal or a system-to-system access through the Web Service API. This document will give a description of the portal functions whereas the API is defined in a separate document: *Trip Submission Web Service API*.

The web portal is accessed by a PT licensee by having a valid Business BCeID and having knowledge of a shared secret to verify identity. The owner of the license will have a means to know the shared secret and be able to provide it at the time of enrollment to gain authentication and access to the portal.

Once the portal is accessed the user will be able to submit either a CSV file or an XML file. The user will provide the date range that the file is defined for. If the file does not match these dates or if the stated PT number in the submission does not match the PT number associated with the authenticated user, then the submission will be denied.

The file format must be adhered to for a successful submission. The portal will perform some basic checks on the submitted file and provide limited error messaging if issues are found. If these checks are passed, then the submission is accepted, and a unique submission ID is given; this is unique to all submissions and can be used by the licensee to keep track and review their own specific trip data submissions.

However, acceptance of the submission does not indicate success of the ingestion process into the Data Warehouse. Because the process is performed as a back-end job queue service the status of progress (and error messaging if failed or flagged) is provided through email notifications or a summary page in the portal.

If the submission fails then an error code is provided so that the licensee can troubleshoot the issue, resolve the problem and resubmit the trip data in order to meet their responsibilities. The ability to submit trip data, review all submissions, review specific submissions and associated data and monitor status and notifications is provided through the portal.

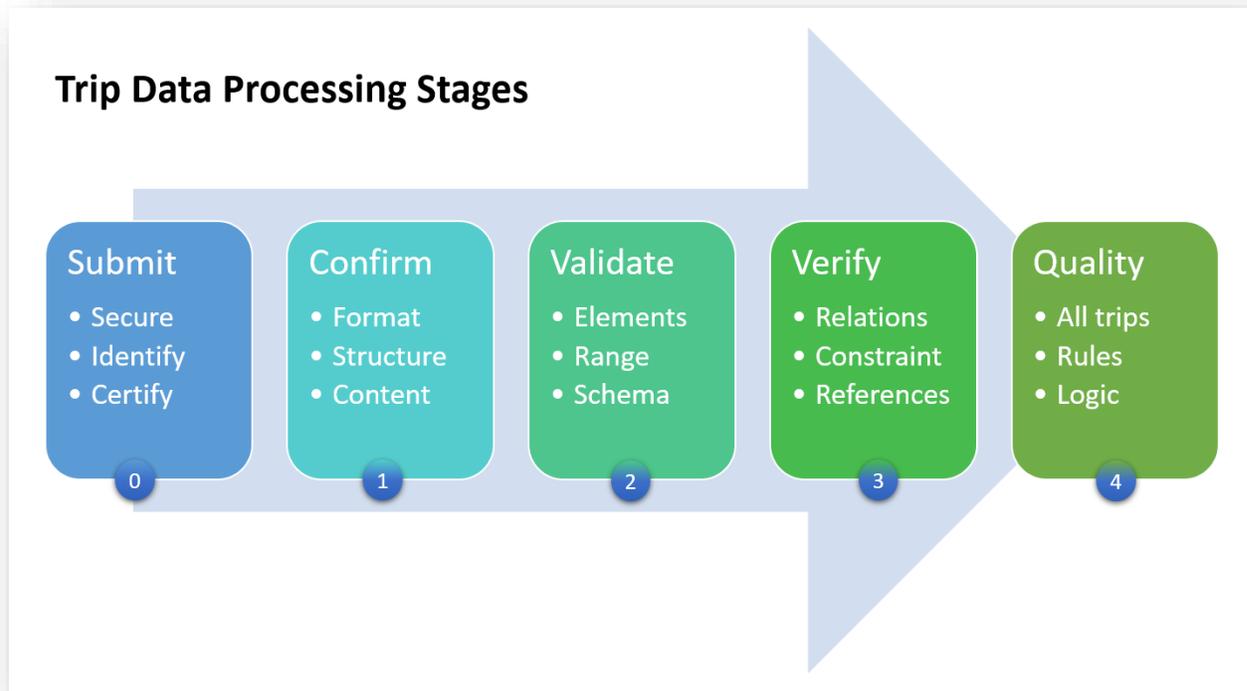
If the processing is successful, then the data is loaded into the data warehouse database. At this stage the final quality assessment analysis is performed on every trip record. The trip data has been accepted regardless of the QA process outcome; however, the passenger transportation branch may set a minimal quality level to be adhered to by the licensees at the branch's discretion.

If a submission is found to have no quality issues, then it is identified as "assured"; otherwise if even one trip has been found to have a QA issue then the submission is "flagged". If the submission fails any of the previous processing stages, then the status is set to "failed" and must be resubmitted with corrections to the errors.

There is no difference between the portal and API methods of submission as it pertains to the processing of the file. The CSV file is first transformed to XML and then submitted; the processing is identical regardless of the methods or form of submission.

3 Processing of Trip Data

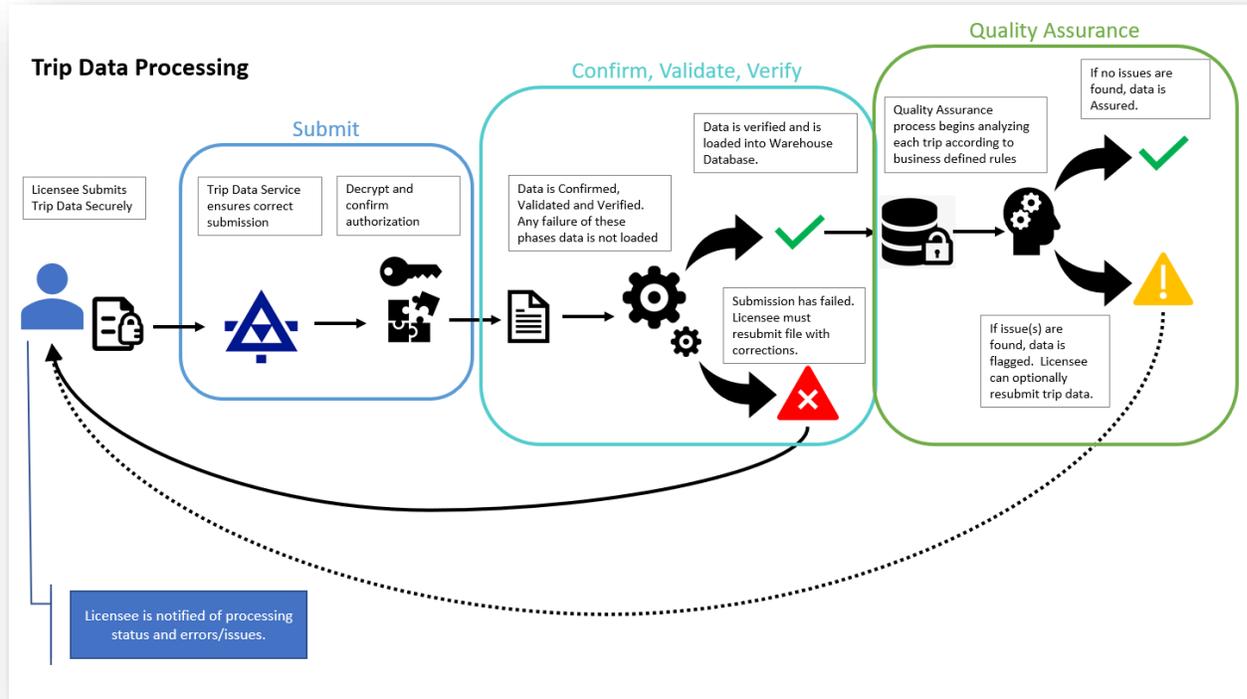
Once the calling party has been authorized then the data will be processed for submission. There are several stages to the data submission; each stage has corresponding error codes that are provided to the calling party so that they can understand any issues or failed submission faults generated. In the diagram below the stages are outlined and the associated error message class is identified (0-4).



The system process only accepts XML as the format for Trip Data; when a CSV is uploaded through the portal it is first transformed to XML and then processed. The format of the XML is defined by an XML Schema Document (XSD) which is provided to the Organization so that the caller can validate their data beforehand to prevent unnecessary errors. A user in the portal has the choice of uploading CSV or XML; XML is highly recommended because of the ability to pre-validate the file before submitting.

After the submission is successful, the processing continues through a *confirmation*, *validation* and *verification* stage that further analyzes the content of the submission to ensure correct format and content. If the trip data passes through these stages, then it will be loaded into the Data Warehouse DB; it is now regarded as a successful submission. However, there is a further stage of *Quality Assurance*; this stage analyzes each individual trip and associated shift and identifies any quality issues. If one or more issues are found, then the submission will be 'flagged'; this indicates that there are data quality issues but that it does not mean a mandatory re-submission. If no issues are found at all in the trip data submission, then the status is deemed 'Assured'; which is identified as 5.0 as a notification message.

The following steps and diagram provide a description of that process so that the organization can better understand the submission process and respond to any generated errors or issues.



3.1 Confirmation

After Authorization (where a submission is accepted), confirmation is the first stage of the process. This is a preliminary check to ensure that the contents of the XML can be validated against the XSD. Examples of checks that are performed are:

1. Is the PT # in the XML document the same as the claimed PT Number?
2. Are the size restrictions being met?
3. Is the XML well formed?

For a complete list of possible errors refer to the error code table. All confirmation errors in this stage begin with a '1' classification. Note that the process terminates with the first found error and no further processing is performed.

If using the API, a notification is sent as a HTTP response; if using the portal, the message is displayed. If the submission attempt has failed, then an email notification will be sent; a re-submission will be necessary.

If the confirmation is successful, then an HTTP success response code is returned and the submission identifier; in the portal the submission code is displayed. The successive stages in processing are performed as queued jobs in the MOTI system and the only notifications from this point forward will be through the provided email. The licensee can see the history of submissions, status of submissions and review notifications in the portal.

3.2 Validation

This is simply the XML being validated against the defined XSD. Note that the ministry will be versioning the XSD in anticipation of future changes. The active XSD will always be provided as a sub-path to the API.

If an error is found the process will terminate and an email notification will be sent. Within that notification the generated XSD error will be provided. No further processing will be performed on this submission and a re-submission is necessary.

3.3 Verification

Because XSD validation does not completely ensure that the provided data can be successfully uploaded into the database a further processing step is required. This is primarily to check the reference integrity; for example, if a shift is referred to in a trip that shift must be in the shift section of the XML file. If it is not, then the processing system will not attempt to generate a new shift or fix the issue. It will terminate and send a notification.

A complete list of possible errors is provided in the error table. Once this stage of processing is completed successfully then the data will be loaded into the Ministry database and the submission is successful. However, a further stage of Quality Assurance is conducted; but regardless of any QA issues found the submission has been received and loaded into the Ministry database.

3.4 Quality Assurance

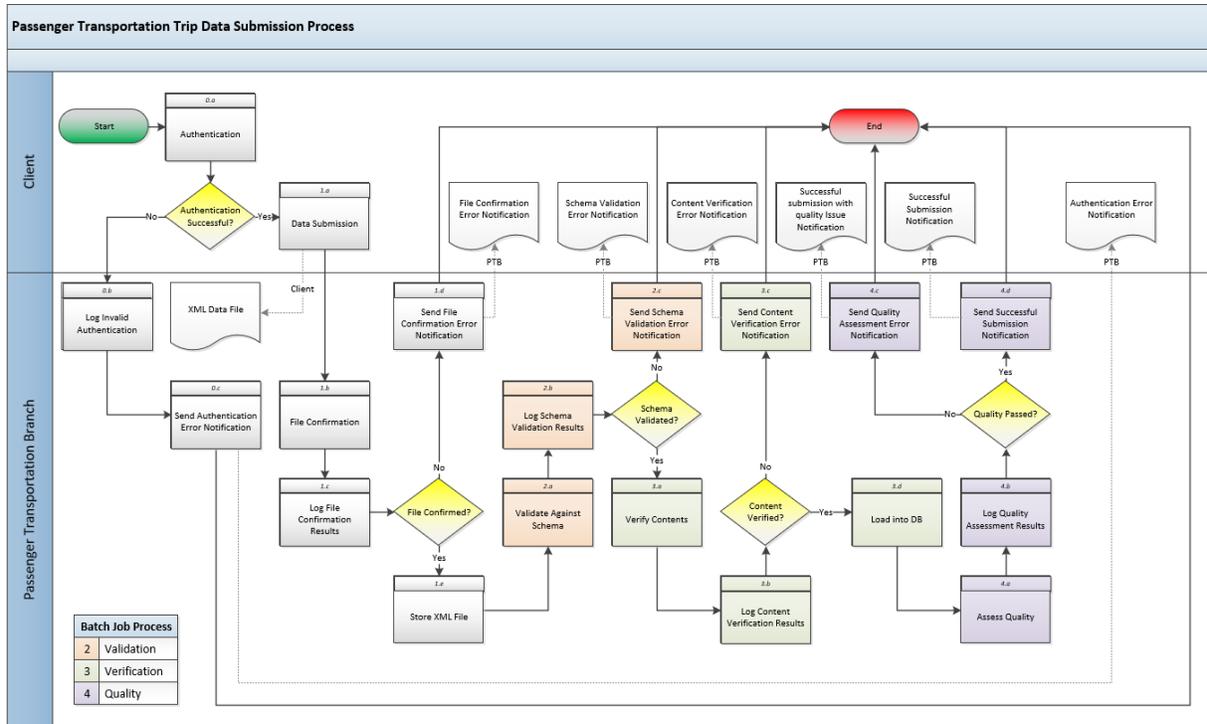
This stage is different from the previous on two points: the submission is still regarded as successful even if QA issues are found and; it is pervasive, in that it will not stop on the first issue found – all data will be reviewed, and all issues found will be returned as an email notification for review. In this case the submission will be regarded as 'Flagged'; but still successful.

If no issues are found, then the submission will be regarded as 'Assured' and a notification will be sent.

Note that the business rules that dictate these QA issues will be progressively adapted, enhanced and extended. These definitions will be made available to the licensees so that they can ensure their systems comply with the evolving quality standards.

An example of a business rule that is currently in place would be: *the pickup date/time cannot be after the drop-off date/time*. A complete list of all QA flagged codes are given in the Error Code Appendix at the end of this document; 4.x error codes are quality assurance flags.

3.5 Process



The process for trip data analysis is described above in a two swim-lane process model; the client (the Licensee) and the PT Branch. The first stage is submission and confirmation which happens upon the file transfer. This is so that if there are basic errors in the submission the end user (or calling system) is informed immediately.

If the submission is confirmed, then the subsequent stages are processed as queued batch jobs and notifications are sent via email (and accessible through the portal).

Note that in submission, certification, validation and verification the process terminates upon the first error found. For the quality processing stage all issues are found throughout the entire submissions and provided as a complete set to the licensee.

3.6 Processing Status Values

There are two values that track the progress of the trip data processing: Processing Status and Quality Assessment. Processing status always indicates the last known successful stage of processing performed. QA indicates if the processing has encountered an error that results in a failure (failed), or if the submission is successful but with QA issues (flagged) or if no issues were found (assured). The combination of these two provide details on how far the processing progressed and what state it ended in. For example, if the XSD validation failed then the Processing Status would be 'Confirmed' (because that was the last successful processing stage performed) and the QA would be 'Failed'.

Processing Status	Quality Assessment	State Description
0 Submitted	0 In-Process	The submission has been authorized and processing has begun.
	1 Failed	The submission failed confirmation. The last known good state is submission. A single error code will be associated with the failure.
1 Confirmed	0 In-Process	The XML has been confirmed and saved to the DB, processing continues.
	1 Failed	The XML was confirmed, but an error was generated during XSD validation. A single error code is associated with the failure.
2 Validated	0 In-Process	The XML has validated against the XSD. Processing continues.
	1 Failed	The XML has failed verification, last known good state is validated, a single error is associated and the XSD validation error is included.
3 Verified	0 In-Process	The XML is now verified, and processing continues. The XML data is now loaded into the DB tables.
	1 Failed	The XML was verified but could not be loaded into the DB for Quality Assurance - the resulting SQL error is associated.
	2 Assured	The submission is successful with no errors and no quality issues.
	3 Flagged	The submission is successful but has at least one trip that has been flagged for quality issues. All found QA issues are returned.

Table 1: Processing Status Values

4 Trip Data Resubmission

Trip data that has already been submitted may be resubmitted to correct errors that were identified in the processing. Note that this only applies to submissions that have been successful (not 'Failed'). If a submission failed, submitting the data again with corrections does not constitute a 'resubmission' as the trip data was never loaded into the database.

A successful submission will have a submission ID, a processing status of 'Verified' and a Quality Assurance (QA) state of either 'Flagged' (with issues) or 'Assured' (no errors). In both cases (flagged or assured) if trip data is submitted that is replacing any day or set of days that has been successfully submitted the original data will be completely removed so that the new data can replace it.

The resubmission follows all the same rules as a regular submission. There will be a new unique submission ID (SID). The submission must be no less than one full day, no incremental days, can be any combination of continuous days up until one complete month (the maximum and must not straddle months). Whatever date set the new file contains, that is the data that will replace the existing correlating data from a previous submission.

For example:

- 1) Original submission was Jan 1-15, new submission is Jan 13
 - a. New Jan 15 data replaces only the old Jan 13 data
 - b. All other data (Jan 1-12, Jan 14 and 15) is untouched
- 2) Original submission was Jan 1-15, new submission is Jan 12-20
 - a. Old Jan 12-15 data is replaced with new data
 - b. New data of Jan 16-20 is loaded
 - c. Existing data of Jan 1-11 is untouched

There is no limit to the number of resubmissions that can be made; within the regulatory restrictions of submission deadlines. Each submission will have a unique identifier and can be reviewed by the licensee in the "Review Submission" page in the portal.

Notes:

- There is no means to 'delete' or remove trip data explicitly; the only manner to do this would be to submit a file that contains no trips or shifts. This would in effect delete the data, but history of previous submissions is retained
- The resubmission must be a logically consistent whole. If there is an QA issue in a particular trip the entire file submitted must still meet all the criteria and restrictions as a whole submission. In other words, there is no way to correct specific elements or data fields in one or more trips.
- Resubmission is the same regardless of if it is via the portal or the API Service
- If a resubmission fails, then all of the original data is untouched and remains as it was loaded.

5 Trip Data Specifications and File Formats

The trip data file format is structured into three parts: the header, shift data and trip data sections. Regardless of the format (CSV or XML) the data specifications are essentially the same (with minor differences described below). The specifications of the data and file formats is defined in this section, with an overview following below.

A CSV file has a typical structure of the first line being the header description information and each subsequent line being the data. Because a CSV cannot describe relations between entities, each line must contain all of the header and shift data; even if this means many lines of redundant data. The end result will be that the first element of the CSV (after the header) on every new line will be the PT number; the format is consistent for every line and must be adhered to according to the CSV specification provided. The XML document can describe relations so a single shift can be described and one or trips can be associated to it within the trip section.

Additionally, with the XML file an XSD is provided so that the licensee can validate the file before it is submitted.

The header contains the Passenger Transportation Number (PT Number); the NSC number; the service type that this submission relates to and the Start / End date of this submission. The XML file contains an additional element where the licensee can provide a description of the calling application if the Web Service API is used.

Trip data is formatted so that a Licensee provides a shift, that has an associated vehicle and driver, and then 0,1 or more trips associated with that shift. A single shift can have one and only one driver and vehicle. A shift is defined as the availability of the driver (working hours or 'ready to accept a ride' status) and is mandatory information to be provided by the licensee. It is not a shift in the operational sense where the organization sets a schedule and plans drivers within time blocks. A shift is specific to a driver operating a vehicle under the PT License and only pertains to that drivers working period. If the driver logs off and is unavailable for work, then the shift ends.

The shift data section contains all the shift information of all the drivers working in the company for the given time period (start / end dates). In this section the licensee provides the driver and vehicle information and the shift start and end date/time. A shift that did not result in any trips should still be provided with the associated driver and vehicle.

The trip section is where all trips are provided; each trip must reference a shift through an identifier that is provided by the licensee. Details of the trip data is provided in subsequent sections, but a summary of the data is: when and where the hail, assignment, pickup, drop off occurred; whether it was accessible, how many passengers, etc.

Trips that are canceled before a pickup location has been provided to a driver is not deemed a valid trip. For example, if a call has been made to a dispatch system where a ride request is made but the pickup location is not given and the caller hangs up before providing it – this is not regarded as a valid trip and is not required to be submitted. However, if a request is made for a ride and a pickup location, date and time is provided to a driver then even if it is immediately canceled this trip is defined as valid and should be recorded and describes in the trip data record.

Other types of trips are "No Shows", "Refused" and "Completed". The mandatory data requirements differ between each type and is described in the next section.

A submitted file can contain a header, shift and trips; a header and shifts or just a header. The meaning for each is different. If only a header and shifts are provided, then drivers were on call during the period and working but no trips were requested or completed. If only the header is provided, then this file indicates that no business was conducted during the period indicated within the file header (i.e.: no active drivers and no trips taken).

A file must contain shifts if it has any trips defined, and those trips must refer to the shifts defined within that file. In all cases, the header must be present. In all cases the sequence defined here must be adhered to or the submission will be rejected.

5.1 Header Data Specifications

For every trip data file, the header information is always mandatory. Even if no shifts or trips are defined, all fields in the header must be defined according to the following specification:

Field Name	Type	Format/Length	Description
PTNo	String	20	Passenger Transportation Number assigned to the organization by the Ministry.
NSCNo	String	30	National Safety Code number assigned to the organization by the Ministry.
SvcTypCd	String	10	One of the following values in uppercase (code description in parentheses): <ul style="list-style-type: none"> · TAXI (Taxi service) · TNS (Ride-hailing service) · LIMO (Limousine service) · ICB (Inter-City Bus service) · OTHERPDV (Other Passenger-Directed Vehicle service)
StartDt	ISO 8601 UTC Date	yyyy-mm-ddZ	Start date of submitted trip data in UTC time-zone equivalent (e.g. 2019-05-27Z). <p style="color: red;">* All vehicle assignment date/time values (VehAssgnmtDT) in the trip data submission should fall between StartDt and EndDt inclusively.</p> <p style="color: red;">* 'Z' is required as a suffix in the date and the date/Time must be in UTC time zone.</p>
EndDt	ISO 8601 UTC Date	yyyy-mm-ddZ	End date of submitted trip data in UTC time zone equivalent (e.g. 2019-05-27Z). <p style="color: red;">* All vehicle assignment date/time values (VehAssgnmtDT) in the trip data submission should fall between StartDt and EndDt inclusively.</p> <p style="color: red;">* 'Z' is required as a suffix in the date and the date/Time must be in UTC time zone.</p>

The start and end dates indicate what period the licensee is submitting for. If, for example, the licensee submits for the month of June but within the file there only exists shifts and trips for a subset (say, one week) of the month then the Ministry will regard this as the complete submission for the month and that the licensee is claiming these are the only trips taken during the entire month.

The start and end date must be within a single calendar month and not span multiple months. A single day submission would have the start and end day be the same date.

All fields in the header are mandatory and if the PT number does not match the authorized submitter’s associated PT number (either through the portal or the Web Service API) then the submission will be rejected.

If the end date is before the start date or either date is in the future the submission will be rejected; and if the service type code is not one of the accepted values, the submission will be rejected.

5.2 Shift Data Specifications

If any trips are defined within the file, then a referenced shift must also be provided. If the licensee has employed drivers to work on call but had no trips recorded, then the licensee must provide a submission file without trips but with shifts. This is because the working hours of drivers are to be monitored across all valid PT License holders to ensure compliance with NSC regulations and policy.

Field Name	Type	Format/Length	Description
ShiftID	String	40	Vendor shift ID for reference. This value must be generated by the Vendor and will be used for communication between the Vendor and the Ministry. * The Vendor must ensure that the ShiftID is unique in their system to avoid ambiguity.
VehRegNo	String	20	Vehicle registration number assigned to the vehicle by ICBC or jurisdictional equivalent
VehRegJur	String	2	Province/state in which the vehicle is registered (e.g. BC); Refer to <i>Table 2</i> for all the possible values.
DriversLicNo	String	20	Driver's license number assigned to the driver by ICBC or jurisdictional equivalent
DriversLicJur	String	2	Province/state in which the driver is licensed (e.g. BC); Refer to <i>Table 2</i> for all the possible values.
ShiftStartDT	ISO 8601 UTC Timestamp	yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.fZ yyyy-MM-ddTHH:mm:ssZ	Start of driver's shift or login into the dispatch system in any of the specified UTC time-zone formats (e.g. 2019-08-16T19:03:07.956Z). * 'Z' is required as a suffix in the date and the date/Time must be in UTC time zone.
ShiftEndDT	ISO 8601 UTC Timestamp	yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.fZ yyyy-MM-ddTHH:mm:ssZ	End of driver's shift or login into the dispatch system in any of the specified UTC time-zone formats (e.g. 2019-08-16T19:03:07.956Z). * 'Z' is required as a suffix in the date and the date/Time must be in UTC time zone.

If a Shift is included in the trip data submission, then all of the listed fields are mandatory. The shift end date/time must be later than the start date/time. Neither the shift start or end date/time must be within the submission date range however, one of them must be (either the start or the end, not both). Because shifts can span days or the month a single shift reference can be provided in more than one submission. This is managed through the unique shift identifier that the licensee provides with the file. If the identifier matches with a previous shift then that shift is overwritten with the new description (assuming in most cases there is no change).

For example, if the date range is Jan 5 and a shift starts at 11pm on Jan 5 but does not end till 6am Jan 6 – this is acceptable. However, a shift start D/T and shift end D/T cannot both be outside the submission date range; for a Jan 5 submission a shift starting at 11pm Jan 4 and ending 1am Jan 6 is not acceptable.

<i>Province Code</i>	<i>Province Name</i>	<i>Province Code</i>	<i>Province Name</i>	<i>Province Code</i>	<i>Province Name</i>
AB	Alberta	MD	Maryland	ON	Ontario
AK	Alaska	ME	Maine	OR	Oregon
AL	Alabama	MI	Michigan	OTHER	Other
AR	Arkansas	MN	Minnesota	PA	Pennsylvania
AZ	Arizona	MO	Missouri	PE	Prince Edward Island
BC	British Columbia	MS	Mississippi	QC	Quebec
CA	California	MT	Montana	RI	Rhode Island
CO	Colorado	MX	Mexico	SC	South Carolina
CT	Connecticut	NB	New Brunswick	SD	South Dakota
DC	District of Columbia	NC	North Carolina	SK	Saskatchewan
DE	Delaware	ND	North Dakota	TN	Tennessee
FL	Florida	NE	Nebraska	TX	Texas
GA	Georgia	NH	New Hampshire	UT	Utah
HI	Hawaii	NJ	New Jersey	VA	Virginia
IA	Iowa	NL	Newfoundland	VT	Vermont
ID	Idaho	NM	New Mexico	WA	Washington
IL	Illinois	NS	Nova Scotia	WI	Wisconsin
IN	Indiana	NT	North West Territories	WV	West Virginia
KS	Kansas	NU	Nunavut	WY	Wyoming
KY	Kentucky	NV	Nevada	XX	Unknown
LA	Louisiana	NY	New York	YT	Yukon Territory
MA	Massachusetts	OH	Ohio		
MB	Manitoba	OK	Oklahoma		

Table 2: Province/State Codes

5.3 Trip Data Specifications

The mandatory set of data for trips is dependent on the trip status code. The trip status code indicates if it is a completed trip or if it is one of a “no show”, “refused” or “canceled”. Below is the specification for trip data with a table that indicates mandatory fields per trip status code. In all cases any trip provided must have a valid reference to a shift through the licensee provided unique shift identifier.

Field Name	Type	Format/Length	Description
TripID	String	40	Vendor trip ID for reference. This value must be generated by the Vendor and will be used for communication between the Vendor and the Ministry. * The Vendor must ensure that the TripID is unique in their system to avoid ambiguity. * All trips in the submission must reference a ShiftID in the same submission.
TripTypeCd	String	10	Refer to Table 3 for all possible values
TripStatusCd	String	10	Refer to Table 4 for all possible values
HailTypeCd	String	10	Refer to Table 5 for all possible values
HailInitDT	ISO 8601 UTC Timestamp	yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.ffZ yyyy-MM-ddTHH:mm:ss.fZ yyyy-MM-ddTHH:mm:ssZ	Date/time that the trip request was initiated in any of the specified UTC time-zone formats (e.g. 2019-08-16T19:03:07.956Z). * 'Z' is required as a suffix in the date and the date/Time must be in UTC time zone.
HailAnswerSecs	Integer	[0 – 100,000]	For phone & IVR hails only, the time (in seconds) elapsed from call initiation to call answer by the dispatcher or the IVR system. * Cannot exceed 100,000 seconds. Enter zero for other hail types.
HailRqstdLat	Decimal	±2.6	Signed decimal degrees latitude of the requested pickup location (e.g. 48.420678). * For street/flag hails, this value

Field Name	Type	Format/Length	Description
			will populate the vehicle assignment latitude and the pickup arrival latitude.
HailRqstdLng	Decimal	±3.6	Signed decimal degrees longitude of the requested pickup location (e.g. -123.369901). * For street/flag hails, this value will populate the vehicle assignment longitude and the pickup arrival longitude.
PreBookedYN	String	1	One of the following values in uppercase (code description in parentheses): · Y (Trip was pre-booked) · N (Trip was not pre-booked) A pre-booked trip is when the rider is requesting a ride that is not immediately required. If the rider wants a ride as soon as possible, then it is not pre-booked; if they are setting a date/time in the future, it is pre-booked.
SvcAnimalYN	String	1	One of the following values in uppercase (code description in parentheses): · Y (Trip included a service animal) · N (Trip did not include a service animal)
VehAssgnmtDT	ISO 8601 UTC Timestamp	yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.ffZ yyyy-MM-ddTHH:mm:ss.fZ yyyy-MM-ddTHH:mm:ssZ	The date & time of the assignment of an available vehicle to the passenger trip in any of the specified UTC time-zone formats (e.g. 2019-08-16T19:03:07.956Z). * For street/flag hails, the vehicle assignment date should match the hail initiation date. * 'Z' is required as a suffix in the date and the date/Time must be in UTC time zone.
VehAssgnmtLat	Decimal	±2.6	Signed decimal degrees latitude of the assigned vehicle at the time of assignment (e.g. 48.420678).

Field Name	Type	Format/Length	Description
			* For street/flag hails, the vehicle assignment latitude should match the hail requested latitude.
VehAssgnmtLng	Decimal	±3.6	Signed decimal degrees longitude of the assigned vehicle at the time of assignment (e.g. -123.369901). * For street/flag hails, the vehicle assignment longitude should match the hail requested longitude.
PsngrCnt	Integer	[0 – 1,000]	Count of passengers in the vehicle. Only enter 0 when there are no passengers (package delivery) * Cannot exceed 1,000
TripDurationMins	Integer	[0 – 10,000]	Trip duration in minutes. * Cannot exceed 10,000 minutes.
TripDistanceKMs	Numeric	8.1 [0 – 9,999,999.9]	Trip distance in kilometers (e.g. 25.3). * Cannot exceed 9,999,999.9.
TtlFareAmt	Currency	8.2 [0 – 9,999,999.99]	Total fare for the trip, in Canadian dollars (exclude dollar sign and commas). * Cannot exceed 9,999,999.99.
PickupArrDT	ISO 8601 UTC Timestamp	yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.fZ yyyy-MM-ddTHH:mm:ssZ	Date and time of arrival at the requested passenger pick-up location in any of the specified UTC time-zone formats (e.g. 2019-08-16T19:03:07.956Z). * For street/flag hails, the pickup arrival date/time should match the hail initiation date. * 'Z' is required as a suffix in the date and the date/Time must be in UTC time zone.
PickupDepDT	ISO 8601 UTC Timestamp	yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.fZ yyyy-MM-ddTHH:mm:ssZ	Date and time of departure from the requested passenger pick-up location in any of the specified UTC time-zone formats (e.g. 2019-08-16T19:03:07.956Z).

Field Name	Type	Format/Length	Description
			* 'Z' is required as a suffix in the date and the date/Time must be in UTC time zone.
PickupLat	Decimal	±2.6	Signed decimal degrees latitude of the requested passenger pick-up location (e.g. 48.420678). * For street/flag hails, the pickup latitude should match the hail requested latitude.
PickupLng	Decimal	±3.6	Signed decimal degrees longitude of the requested passenger pick-up location (e.g. -123.369901). * For street/flag hails, the pickup longitude should match the hail requested longitude.
DropoffArrDT	ISO 8601 UTC Timestamp	yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.ffZ yyyy-MM-ddTHH:mm:ss.fZ yyyy-MM-ddTHH:mm:ssZ	Date and time of arrival at the requested passenger drop-off location in any of the specified UTC time-zone formats (e.g. 2019-08-16T19:03:07.956Z). * 'Z' is required as a suffix in the date and the date/Time must be in UTC time zone.
DropoffDepDT	ISO 8601 UTC Timestamp	yyyy-MM-ddTHH:mm:ss.fffZ yyyy-MM-ddTHH:mm:ss.ffZ yyyy-MM-ddTHH:mm:ss.fZ yyyy-MM-ddTHH:mm:ssZ	Date and time of departure from the requested passenger drop-off location in any of the specified UTC time-zone formats (e.g. 2019-08-16T19:03:07.956Z). * 'Z' is required as a suffix in the date and the date/Time must be in UTC time zone.
DropoffLat	Decimal	±2.6	Signed decimal degrees latitude of the request passenger drop-off location (e.g. 48.420678)
DropoffLng	Decimal	±3.6	Signed decimal degrees longitude of the request passenger drop-off location (e.g. -123.369901)

<i>Trip Type Code</i>	<i>Trip Type Details</i>
ACCES	Accessible
CNVTL	Conventional

Table 3: Trip Type Codes

<i>Trip Status Code</i>	<i>Trip Status Details</i>
CMPLT	Completed
CNCLD	Cancelled
NOSHO	No-Show
REFSD	Refused

Table 4: Trip Status Codes

<i>Hail Type Code</i>	<i>Hail Type Details</i>
APP	Application
FLAG	Street hail
IVR	Interactive Voice Response
PHONE	Voice call
WEB	Web booking

Table 5: Hail Type Codes

5.4 Mandatory Data per Trip Type

In a trip data submission that contains trips, the set of mandatory fields is dependent on the type of trip. For example, a canceled trip will not have the drop off location fields, so it is not required. In some cases, the fields may or may not be relevant – depending on the circumstances; for example, in a refused trip a passenger count could be provided as the passengers may have entered the vehicle but due to circumstances were refused transport. If a trip is canceled, then the ‘ignored’ data is not analyzed for quality assurance and is not loaded into the database.

A key data principle for all data elements is that if the Licensee does not collect the data and is unable to provide it, then that data element should be NULL / Empty String. A value should not be provided to indicate that the information is not known. For example, if the number of passengers is not collected then that field should be empty; and not a 0 or 1 even though that is most likely the case in the majority of trips. This allows the Ministry to know when data is not provided. For any mandatory data if the Licensee does not collect it the Licensee must contact the Branch Registrar to present the issue and seek an exemption which is up to the discretion of the business. This document does not have any authority to give approval for granting exemptions to mandatory data.

The following table provides details on what fields are mandatory (required), optional and ignored. For all trips the fields 1 through 13 are mandatory.

Data Element		Trip Status Code			
		Completed	No-Show	Refused	Cancelled
1	TripID	Required	Required	Required	Required
2	TripTypeCd				
3	TripStatusCd				
4	HailTypeCd				
5	HailInitDT				
6	HailAnswerSecs				
7	HailRqstdLat				
8	HailRqstdLng				
9	PreBookedYN				
10	SvcAnimalYN				
11	VehAssgnmtDT				
12	VehAssgnmtLat				
13	VehAssgnmtLng				
14	PsngrCnt	Optional	Optional	Ignored	
15	TripDurationMins				
16	TripDistanceKms				
17	TtlFareAmt	Required	Required		
18	PickupArrDT				
19	PickupDepDT				
20	PickupLat	Required	Required		
21	PickupLng				
22	DropoffArrDT				
23	DropoffDepDT	Ignored	Optional		
24	DropoffLat				
25	DropoffLng				

Table 6: Mandatory Data per Trip Type

5.5 File Formats

The trip data can be submitted in one of the two formats in the portal and only XML through the trip data API. Note that even if a CSV is submitted through the portal the CSV is first transformed into XML and then processed under the same means as an XML submission.

CSV files can be no larger than 100 MB and XML files can be no larger than 500 MB. If the desired submission exceeds these limits, then the licensee should reduce the time span of the submission until the segmented files are all under these limits. Regardless of format the maximum number of trips per submission is 200,000.

The ideal is to determine a frequency of submission based on a reasonable file size (which relates to number of trips). If the file size is reasonable as the number of trips are not very large than monthly submissions are acceptable. However, if many trips are conducted even in a 24hr period it would be advisable to submit data on a daily basis.

The advantage is that if the submission fails or is flagged for quality issues then resubmissions are smaller and easier to manage. Getting feedback on trip data quality in a more frequent cycle is also a benefit in case issues appear during a monthly cycle.

In all cases however, because the end shift date/time must be provided a trip data submission must wait until all referenced shifts are complete before submitting. For example, if submitting for Jan 5 and a shift starts at 11pm but ends at 5am Jan 6; the submission can be submitted no earlier than 5am Jan 6.

When no data is provided for a specific field then leave the field blank - do not enter a value if the information is unknown. For XML this is an empty field and for CSV this is indicated as no character between commas; the format would simply be ','. For example: if the passenger count is not known do not enter '0' in this field – leave the field empty to indicate unknown.

5.5.1 XML

The XML is divided into three main tags: **<Header>**, **<ShiftData>** and **<TripData>**; because XML can be referential and adhere to defined constraints (as defined in an XSD) XML is the preferred format of Trip Data Submission. The XML file can be UTF-8 or UTF-16. The XML file has two additional fields in the header: *UserID* & *ApplicationID*. These fields are for the Licensee's exclusive use. They provide a means for the licensee (or a designate organization) to indicate from which system and/or user is submitting this file. The XML file should have the tags, but the size can be 0-30 characters of text. This is primarily for System-to-System submissions through the Web Service API.

Please refer to *Appendix A: XML Schema Document (XSD)*. A sample XML file as an example in *Appendix B: Sample XML File*.

5.5.2 CSV

The CSV file cannot retain references or constraints and has only the first line as the header names and the subsequent lines as data. The CSV file should be ASCII Text. The header line in the CSV is defined as:

```
PTNo, NSCNo, SvcTypCd, StartDt, EndDt, ShiftID, VehRegNo, VehRegJur, DriversLicNo, DriversLicJur, ShiftStartDT, ShiftEndDT, TripID, TripTypeCd, TripStatusCd, HailTypeCd, HailInitDt, HailAnswerSecs, HailRqstdLat, HailRqstdLng, PreBookedYN, SvcAnimalYN, VehAssgnmtDt, VehAssgnmtLat, VehAssgnmtLng, PsngrCnt, TripDurationMins, TripDistanceKMs, TtlFareAmt, PickupArrDt, PickupDepDt, PickupLat, PickupLng, DropoffArrDt, DropoffDepDt, DropoffLat, DropoffLng
```

Do not provide a trailing comma – the LF/CR indicates the end of trip data. The system checks the CSV initially for the proper number of commas as a preliminary verification.

Note that every line of data must contain all the data listed in the header. The *New Line* control character code can be either CRLF or LF. A sample CSV is provided in *Appendix C: Sample CSV File*.

6 Appendix A: XML Schema Document (XSD)

```

<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:vc="http://www.w3.org/2007/XMLSchema-versioning"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  version="1.3"
  attributeFormDefault="qualified">
  <xs:annotation>
    <xs:documentation>
      =====
      Province of British Columbia - Ministry of Transportation and Infrastructure

      * NOTE: ALL date and timestamp values MUST be in the UTC (Zulu) timezone.
      =====
      Version Date   Author   Comment
      =====
      1.1   2020-01-06 DOFILTEA * Added version number to XSD
          * Added additional patterns to elements
          2020-01-07 DOFILTEA * Added minimum field lengths to some elements
      1.2   2020-01-14 JASMITH * Removed not null restriction to Hail Answer
          Seconds (HailAnswerSecs)
      1.3   2020-01-21 DOFILTEA * Amended timestamp patterns to require decimal
          point separator between seconds and milliseconds
          * Added maxinclusive value to HailAnswerSecs
          * Added maxinclusive value to TripDurationMins
          * Added maxinclusive value to TtlFareAmt
      =====
    </xs:documentation>
  </xs:annotation>
  <!-- START OF SECTION -->
  <xs:element name="PassengerTrip">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="Header"/>

```

```
<xs:element maxOccurs="1" minOccurs="0" ref="ShiftData"/>
<xs:element maxOccurs="1" minOccurs="0" ref="TripData"/>
</xs:sequence>
</xs:complexType>
</xs:element>
<!-- END OF SECTION -->
<!-- START OF SECTION -->
<xs:element name="Header">
  <xs:complexType>
    <xs:sequence maxOccurs="1" minOccurs="1">
      <xs:element ref="UserID"/>
      <xs:element ref="ApplicationID"/>
      <xs:element ref="PTNo"/>
      <xs:element ref="NSCNo"/>
      <xs:element ref="SvcTypCd"/>
      <xs:element ref="StartDt"/>
      <xs:element ref="EndDt"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="UserID" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:maxLength value="30"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="ApplicationID" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:maxLength value="30"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="PTNo" nillable="false">
```

```
<xs:simpleType>
  <xs:restriction base="xs:string">
    <xs:minLength value="5"/>
    <xs:maxLength value="20"/>
  </xs:restriction>
</xs:simpleType>
</xs:element>
<xs:element name="NSCNo" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:minLength value="9"/>
      <xs:maxLength value="30"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="SvcTypCd" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:maxLength value="10"/>
      <xs:enumeration value="TAXI"/>
      <xs:enumeration value="TNS"/>
      <xs:enumeration value="LIMO"/>
      <xs:enumeration value="ICB"/>
      <xs:enumeration value="OTHERPDV"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xsd:element name="StartDt" nillable="false"> <!-- Ensure that the timestamp is in the UTC timezone -->
  <xsd:simpleType>
    <xsd:restriction base="xsd:date">
      <xsd:pattern value="\d{4}-\d{2}-\d{2}Z"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="EndDt" nillable="false"> <!-- Ensure that the timestamp is in the UTC timezone -->
```

```
<xsd:simpleType>
  <xsd:restriction base="xsd:date">
    <xsd:pattern value="\d{4}-\d{2}-\d{2}Z"/>
  </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<!-- END OF SECTION -->
<xs:annotation>
  <xs:documentation>
    -----
    The vendor-provided ShiftID should be a unique value within the vendor's
    system to be able to uniquely identify a shift.
    -----
  </xs:documentation>
</xs:annotation>
<!-- START OF SECTION -->
<xs:element name="ShiftData">
  <xs:complexType>
    <xs:sequence>
      <xs:element maxOccurs="unbounded" minOccurs="0" ref="Shift"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="Shift">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="ShiftID"/>
      <xs:element ref="VehRegNo"/>
      <xs:element ref="VehRegJur"/>
      <xs:element ref="DriversLicNo"/>
      <xs:element ref="DriversLicJur"/>
      <xs:element ref="ShiftStartDT"/>
      <xs:element ref="ShiftEndDT"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

```
</xsd:element>
<xsd:element name="ShiftStartDT" nillable="false"> <!-- Ensure that the timestamp is in the UTC timezone -->
  <xsd:simpleType>
    <xsd:restriction base="xsd:dateTime">
      <xsd:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z"/>
      <xsd:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}\.\d{1,3}Z"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="ShiftEndDT" nillable="false"> <!-- Ensure that the timestamp is in the UTC timezone -->
  <xsd:simpleType>
    <xsd:restriction base="xsd:dateTime">
      <xsd:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z"/>
      <xsd:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}\.\d{1,3}Z"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<!-- END OF SECTION -->
<xs:annotation>
  <xs:documentation>
    -----
    The vendor-provided TripID should be a unique value within the vendor's
    system to be able to uniquely identify a passenger trip.

    The ShiftID reference by a trip in this section MUST match a ShiftID in the
    previous (ShiftData) section. If a trip references a non-existent ShiftID in
    this file, the trip data submission will be rejected.
    -----
  </xs:documentation>
</xs:annotation>
<!-- START OF SECTION -->
<xs:element name="TripData">
  <xs:complexType>
    <xs:sequence>
      <xs:element maxOccurs="unbounded" minOccurs="0" ref="Trip"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

```
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="Trip">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="ShiftID"/>
      <xs:element ref="TripID"/>
      <xs:element ref="TripTypeCd"/>
      <xs:element ref="TripStatusCd"/>
      <xs:element ref="HailTypeCd"/>
      <xs:element ref="HailInitDT"/>
      <xs:element ref="HailAnswerSecs"/>
      <xs:element ref="HailRqstdLat"/>
      <xs:element ref="HailRqstdLng"/>
      <xs:element ref="PreBookedYN" />
      <xs:element ref="SvcAnimalYN"/>
      <xs:element ref="VehAssgnmtDT"/>
      <xs:element ref="VehAssgnmtLat"/>
      <xs:element ref="VehAssgnmtLng"/>
      <xs:element ref="PsngrCnt"/>
      <xs:element ref="TripDurationMins"/>
      <xs:element ref="TripDistanceKMs"/>
      <xs:element ref="TtlFareAmt"/>
      <xs:element ref="PickupArrDT"/>
      <xs:element ref="PickupDepDT"/>
      <xs:element ref="PickupLat"/>
      <xs:element ref="PickupLng"/>
      <xs:element ref="DropoffArrDT"/>
      <xs:element ref="DropoffDepDT"/>
      <xs:element ref="DropoffLat"/>
      <xs:element ref="DropoffLng"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

```
<xs:element name="TripID" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:minLength value="1"/>
      <xs:maxLength value="40"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="TripTypeCd" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:maxLength value="10"/>
      <xs:enumeration value="ACCES"/>
      <xs:enumeration value="CNVTL"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="TripStatusCd" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:maxLength value="10"/>
      <xs:enumeration value="CMPLT"/>
      <xs:enumeration value="CNCLD"/>
      <xs:enumeration value="NOSHO"/>
      <xs:enumeration value="REFSD"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="HailTypeCd" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:maxLength value="10"/>
      <xs:enumeration value="APP"/>
      <xs:enumeration value="FLAG"/>
      <xs:enumeration value="IVR"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
```

```
<xs:enumeration value="PHONE"/>
<xs:enumeration value="WEB"/>
</xs:restriction>
</xs:simpleType>
</xs:element>
<xsd:element name="HailInitDT" nillable="false"> <!-- Ensure that the timestamp is in the UTC timezone -->
  <xsd:simpleType>
    <xsd:restriction base="xsd:dateTime">
      <xsd:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z"/>
      <xsd:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}\.\d{1,3}Z"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xs:element name="HailAnswerSecs" nillable="false">
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:length value="0"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType>
        <xs:restriction base="xs:integer">
          <xs:minInclusive value="0"/>
          <xs:maxInclusive value="100000"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:union>
  </xs:simpleType>
</xs:element>
<xs:element name="HailRqstdLat" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:decimal">
      <xs:minInclusive value="-90"/>
      <xs:maxInclusive value="90"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
```

```
</xs:restriction>
</xs:simpleType>
</xs:element>
<xs:element name="HailRqstdLng" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:decimal">
      <xs:minInclusive value="-180"/>
      <xs:maxInclusive value="180"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="PreBookedYN">
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:length value="0"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:maxLength value="1"/>
          <xs:enumeration value="Y"/>
          <xs:enumeration value="N"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:union>
  </xs:simpleType>
</xs:element>
<xs:element name="SvcAnimalYN">
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:length value="0"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:union>
  </xs:simpleType>
</xs:element>
```

```
</xs:restriction>
</xs:simpleType>
<xs:simpleType>
  <xs:restriction base="xs:string">
    <xs:maxLength value="1"/>
    <xs:enumeration value="Y"/>
    <xs:enumeration value="N"/>
  </xs:restriction>
</xs:simpleType>
</xs:union>
</xs:simpleType>
</xs:element>
<xsd:element name="VehAssgnmtDT" nillable="false"> <!-- Ensure that the timestamp is in the UTC timezone -->
  <xsd:simpleType>
    <xsd:restriction base="xsd:dateTime">
      <xsd:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z"/>
      <xsd:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}\.\d{1,3}Z"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xs:element name="VehAssgnmtLat" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:decimal">
      <xs:minInclusive value="-90"/>
      <xs:maxInclusive value="90"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="VehAssgnmtLng" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:decimal">
      <xs:minInclusive value="-180"/>
      <xs:maxInclusive value="180"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
```

```
</xs:element>
<xs:element name="PsngrCnt">
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:length value="0"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType>
        <xs:restriction base="xs:integer">
          <xs:minInclusive value="0"/>
          <xs:maxInclusive value="1000"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:union>
  </xs:simpleType>
</xs:element>
<xs:element name="TripDurationMins">
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:length value="0"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType>
        <xs:restriction base="xs:integer">
          <xs:minInclusive value="0"/>
          <xs:maxInclusive value="10000"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:union>
  </xs:simpleType>
</xs:element>
```

```
<xs:element name="TripDistanceKMs">
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:length value="0"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType>
        <xs:restriction base="xs:decimal">
          <xs:minInclusive value="0"/>
          <xs:maxInclusive value="9999999.9"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:union>
  </xs:simpleType>
</xs:element>
<xs:element name="TtlFareAmt">
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:length value="0"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType>
        <xs:restriction base="xs:decimal">
          <xs:minInclusive value="0"/>
          <xs:maxInclusive value="9999999.99"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:union>
  </xs:simpleType>
</xs:element>
<xs:element name="PickupArrDT"> <!-- Ensure that the timestamp is in the UTC timezone -->
```

```
<xs:simpleType>
  <xs:union>
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:length value="0"/>
      </xs:restriction>
    </xs:simpleType>
    <xs:simpleType>
      <xs:restriction base="xs:dateTime">
        <xs:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z"/>
        <xs:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}\.\d{1,3}Z"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:union>
</xs:simpleType>
</xs:element>
<xs:element name="PickupDepDT"> <!-- Ensure that the timestamp is in the UTC timezone -->
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:length value="0"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType>
        <xs:restriction base="xs:dateTime">
          <xs:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z"/>
          <xs:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}\.\d{1,3}Z"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:union>
  </xs:simpleType>
</xs:element>
<xs:element name="PickupLat">
  <xs:simpleType>
```

```
<xs:union>
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:length value="0"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType>
    <xs:restriction base="xs:decimal">
      <xs:minInclusive value="-90"/>
      <xs:maxInclusive value="90"/>
    </xs:restriction>
  </xs:simpleType>
</xs:union>
</xs:simpleType>
</xs:element>
<xs:element name="PickupLng">
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:length value="0"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType>
        <xs:restriction base="xs:decimal">
          <xs:minInclusive value="-180"/>
          <xs:maxInclusive value="180"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:union>
  </xs:simpleType>
</xs:element>
<xs:element name="DropoffArrDT"> <!-- Ensure that the timestamp is in the UTC timezone -->
  <xs:simpleType>
    <xs:union>
```

```
<xs:simpleType>
  <xs:restriction base="xs:string">
    <xs:length value="0"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType>
  <xs:restriction base="xs:dateTime">
    <xs:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z"/>
    <xs:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}\.\d{1,3}Z"/>
  </xs:restriction>
</xs:simpleType>
</xs:union>
</xs:simpleType>
</xs:element>
<xs:element name="DropoffDepDT"> <!-- Ensure that the timestamp is in the UTC timezone -->
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:length value="0"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType>
        <xs:restriction base="xs:dateTime">
          <xs:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z"/>
          <xs:pattern value="\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}\.\d{1,3}Z"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:union>
  </xs:simpleType>
</xs:element>
<xs:element name="DropoffLat">
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
```

```
<xs:restriction base="xs:string">
  <xs:length value="0"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType>
  <xs:restriction base="xs:decimal">
    <xs:minInclusive value="-90"/>
    <xs:maxInclusive value="90"/>
  </xs:restriction>
</xs:simpleType>
</xs:union>
</xs:simpleType>
</xs:element>
<xs:element name="DropoffLng">
  <xs:simpleType>
    <xs:union>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:length value="0"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType>
        <xs:restriction base="xs:decimal">
          <xs:minInclusive value="-180"/>
          <xs:maxInclusive value="180"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:union>
  </xs:simpleType>
</xs:element>
<xs:element name="ShiftID" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:minLength value="1"/>
      <xs:maxLength value="40"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
```

```
</xs:restriction>
</xs:simpleType>
</xs:element>
<xs:element name="VehRegNo" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
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    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="VehRegJur" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:minLength value="2"/>
      <xs:maxLength value="2"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="DriversLicNo" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:minLength value="4"/>
      <xs:maxLength value="20"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="DriversLicJur" nillable="false">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:minLength value="2"/>
      <xs:maxLength value="2"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
```



<!-- END OF SECTION -->
</xs:schema>

7 Appendix B: Sample XML

```
<?xml version="1.0" encoding="utf-8"?>
<PassengerTrip xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="PassengerTrip.xsd">
  <Header>
    <UserID></UserID>
    <ApplicationID></ApplicationID>
    <PTNo>12345</PTNo>
    <NSCNo>123456789</NSCNo>
    <SvcTypCd>TAXI</SvcTypCd>
    <StartDt>2018-12-19Z</StartDt>
    <EndDt>2018-12-19Z</EndDt>
  </Header>
  <ShiftData>
    <Shift>
      <ShiftID>SD5446</ShiftID>
      <VehRegNo>3213546</VehRegNo>
      <VehRegJur>BC</VehRegJur>
      <DriversLicNo>654666544</DriversLicNo>
      <DriversLicJur>BC</DriversLicJur>
      <ShiftStartDT>2018-12-19T20:00:00.007Z</ShiftStartDT>
      <ShiftEndDT>2018-12-20T04:00:00.707Z</ShiftEndDT>
    </Shift>
  </ShiftData>
  <TripData>
    <Trip>
      <ShiftID>SD5446</ShiftID>
      <TripID>6354365418</TripID>
      <TripTypeCd>CNVTL</TripTypeCd>
      <TripStatusCd>CMPLT</TripStatusCd>
      <HailTypeCd>APP</HailTypeCd>
      <HailInitDT>2018-12-19T20:13:25.907Z</HailInitDT>
      <HailAnswerSecs>0</HailAnswerSecs>
      <HailRqstdLat>49.273276</HailRqstdLat>
      <HailRqstdLng>-123.129026</HailRqstdLng>
    </Trip>
  </TripData>
</PassengerTrip>
```

```
<PreBookedYN>N</PreBookedYN>
<SvcAnimalYN>N</SvcAnimalYN>
<VehAssgnmtDT>2018-12-19T20:13:26.007Z</VehAssgnmtDT>
<VehAssgnmtLat>49.2803992</VehAssgnmtLat>
<VehAssgnmtLng>-123.1344473</VehAssgnmtLng>
<PsngrCnt>1</PsngrCnt>
<TripDurationMins>5</TripDurationMins>
<TripDistanceKMs>1.4</TripDistanceKMs>
<TtlFareAmt>12.20</TtlFareAmt>
<PickupArrDT>2018-12-19T20:13:32.836Z</PickupArrDT>
<PickupDepDT>2018-12-19T20:13:34.123Z</PickupDepDT>
<PickupLat>49.278247</PickupLat>
<PickupLng>-123.128766</PickupLng>
<DropoffArrDT>2018-12-19T20:13:39.566Z</DropoffArrDT>
<DropoffDepDT>2018-12-19T20:13:39.998Z</DropoffDepDT>
<DropoffLat>49.27111</DropoffLat>
<DropoffLng>-123.121676</DropoffLng>
</Trip>
<Trip>
  <ShiftID>SD5446</ShiftID>
  <TripID>6354365419</TripID>
  <TripTypeCd>ACCES</TripTypeCd>
  <TripStatusCd>CMPLT</TripStatusCd>
  <HailTypeCd>PHONE</HailTypeCd>
  <HailInitDT>2018-12-19T20:14:30.907Z</HailInitDT>
  <HailAnswerSecs>21</HailAnswerSecs>
  <HailRqstdLat>48.420678</HailRqstdLat>
  <HailRqstdLng>-123.369901</HailRqstdLng>
  <PreBookedYN>N</PreBookedYN>
  <SvcAnimalYN>Y</SvcAnimalYN>
  <VehAssgnmtDT>2018-12-19T20:14:31.807Z</VehAssgnmtDT>
  <VehAssgnmtLat>48.420678</VehAssgnmtLat>
  <VehAssgnmtLng>-123.369901</VehAssgnmtLng>
  <PsngrCnt>2</PsngrCnt>
  <TripDurationMins>5</TripDurationMins>
```

```
<TripDistanceKMs>1.4</TripDistanceKMs>
<TtlFareAmt>15.44</TtlFareAmt>
<PickupArrDT>2018-12-19T20:19:32.907Z</PickupArrDT>
<PickupDepDT>2018-12-19T20:19:33.000Z</PickupDepDT>
<PickupLat>48.420678</PickupLat>
<PickupLng>-123.369901</PickupLng>
<DropoffArrDT>2018-12-19T20:24:32.807Z</DropoffArrDT>
<DropoffDepDT>2018-12-19T20:24:32.907Z</DropoffDepDT>
<DropoffLat>48.411198</DropoffLat>
<DropoffLng>-123.374327</DropoffLng>
</Trip>
<Trip>
<ShiftID>SD5446</ShiftID>
<TripID>6354365420</TripID>
<TripTypeCd>CNVTL</TripTypeCd>
<TripStatusCd>CNCLD</TripStatusCd>
<HailTypeCd>PHONE</HailTypeCd>
<HailInitDT>2018-12-19T20:33:30.907Z</HailInitDT>
<HailAnswerSecs>21</HailAnswerSecs>
<HailRqstdLat>48.420678</HailRqstdLat>
<HailRqstdLng>-123.369901</HailRqstdLng>
<PreBookedYN>N</PreBookedYN>
<SvcAnimalYN>N</SvcAnimalYN>
<VehAssgnmtDT>2018-12-19T20:33:41.807Z</VehAssgnmtDT>
<VehAssgnmtLat>48.420678</VehAssgnmtLat>
<VehAssgnmtLng>-123.369901</VehAssgnmtLng>
<PsngrCnt></PsngrCnt>
<TripDurationMins></TripDurationMins>
<TripDistanceKMs></TripDistanceKMs>
<TtlFareAmt></TtlFareAmt>
<PickupArrDT></PickupArrDT>
<PickupDepDT></PickupDepDT>
<PickupLat></PickupLat>
<PickupLng></PickupLng>
<DropoffArrDT></DropoffArrDT>
```



```
<DropoffDepDT></DropoffDepDT>  
<DropoffLat></DropoffLat>  
<DropoffLng></DropoffLng>  
</Trip>  
</TripData>  
</PassengerTrip>
```

8 Appendix C: Sample CSV File

PTNo,NSCNo,SvcTypCd,StartDt,EndDt,ShiftID,VehRegNo,VehRegJur,DriversLicNo,DriversLicJur,ShiftStartDT,ShiftEndDT,TripID,TripTypeCd,TripStatusCd,HailTypeCd,HailInitDt,HailAnswerSecs,HailRqstdLat,HailRqstdLng,PreBookedYN,SvcAnimalYN,VehAssgnmtDt,VehAssgnmtLat,VehAssgnmtLng,PsngrCnt,TripDurationMins,TripDistanceKMs,TtlFareAmt,PickupArrDt,PickupDepDt,PickupLat,PickupLng,DropoffArrDt,DropoffDepDt,DropoffLat,DropoffLng

12345,123456789,TAXI,2018-12-19Z,2018-12-21Z,S54,A123456789,BC,12A3456789,BC,2018-12-19T08:01:00.000Z,2018-12-19T16:01:00.000Z,T54TRP6321,CNVTL,CMPLT,PHONE,2018-12-19T08:05:00.000Z,65,48.420678,-123.369901,N,Y,2018-12-19T08:05:10.000Z,48.420678,-123.369901,0,0,5.1,15.44,2018-12-19T08:07:10.000Z,2018-12-19T08:07:30.000Z,48.420678,-123.369901,2018-12-19T08:12:30.000Z,2018-12-19T08:12:35.000Z,48.420678,-123.369901

12345,123456789,TAXI,2018-12-19Z,2018-12-21Z,S55,A123456789,BC,12A3456789,BC,2018-12-20T08:00:00.001,2018-12-20T17:17:30.000,T54TRP6322,CNVTL,CMPLT,APP,2018-12-20T08:31:00.001,0,48.420678,-123.369901,N,N,2018-12-20T08:31:00.001,48.420678,-123.369901,0,0,5.1,15.44,2018-12-20T08:41:00.001,2018-12-20T08:41:45.001,48.420678,-123.369901,2018-12-20T08:55:45.001,2018-12-20T08:55:55.001,48.420678,-123.369901

12345,123456789,TAXI,2018-12-19Z,2018-12-21Z,S56,B123456789,BC,12B3456789,BC,2018-12-21T07:59:00.002,2018-12-21T19:17:30.000,T54TRP6323,CNVTL,CMPLT,IVR,2018-12-21T08:59:00.002,35,48.420678,-123.369901,Y,N,2018-12-21T09:01:00.002,48.420678,-123.369901,0,0,5.1,15.44,2018-12-21T09:14:00.002,2018-12-21T09:15:00.002,48.420678,-123.369901,2018-12-21T10:14:00.002,2018-12-21T10:14:21.002,48.420678,-123.369901

12345,123456789,TAXI,2018-12-19,2018-12-21,S56,B123456789,BC,12B3456789,BC,2018-12-21T07:59:00.002,2018-12-21T19:17:30.000,T54TRP6324,CNVTL,CMPLT,APP,2018-12-21T08:15:00.002,0,48.420678,-123.369901,N,N,2018-12-21T08:15:00.002,48.420678,-123.369901,0,0,5.1,15.44,2018-12-21T08:15:45.002,2018-12-21T08:15:55.002,48.420678,-123.369901,2018-12-21T13:25:55.002,2018-12-21T13:26:45.002,48.420678,-123.369901

9 Appendix D: Error and Issue Notification

The processing status of the Trip data submission done via API will be notified to the carrier through email.

As the submitted data is processed throughout these stages there are failure error codes (associated with Confirmed, Validated and Verified stages), and Flagged error codes (associated with Quality Assurance). Each error code will have two parts: X.Y. The X indicates the processing stage the error was generated in and the Y indicates the actual error generated.

Confirmed = 1, Validated = 2, Verified = 3, Quality Assurance = 4.

Error Code	Processing Stage	Short Description	Long Description
0.1	Authorization	JWT signature incorrect	Authorization failure. The signature for the JSON Web Token is incorrect. Refer to Trip Data Service API Documentation for guidance.
1.1	Confirmation	Incorrect submission Start Date	The submission failed because the submission Start Date format is incorrect. The date format must be yyyy-mm-ddZ.
1.2	Confirmation	Incorrect submission End Date	The submission failed because the submission End Date format is incorrect. The date format must be yyyy-mm-ddZ.
1.3	Confirmation	Submission Start/End date later than current date	The submission failed because the submission Start Date or End Date is greater than the current date. Submission Start/End dates must be less than or equal to the current date.
1.4	Confirmation	Submission Start Date later than the End Date	The submission failed because the submission start date is greater than the end date. The submission start date must be before the end date.
1.5	Confirmation	Submission Start/End dates span calendar months	The submission failed because the submission Start and End dates span multiple calendar months. The Start and End dates must both be in the same calendar month.
1.6	Confirmation	File size is too small	The submission failed because the file is less than 43B. All submitted files must not be less than 43B.
1.7	Confirmation	CSV file size is too large	The submission failed because the file is greater than 100MB. All submitted CSV files must not be greater than 100MB.
1.8	Confirmation	Error loading the file	The submission failed because an error was encountered loading the file. The file must be valid and well formed.

Error Code	Processing Stage	Short Description	Long Description
1.9	Confirmation	Incorrect PT Number	The submission failed because the PT Number in the submission is different from the PT Number associated with the BCeID that uploaded the submission. They must be the same.
1.10	Confirmation	XML file size is too large	The submission failed because the file is greater than 500MB. All submitted XML files must not be greater than 500MB.
1.11	Confirmation	NSC Number mismatch	The submission failed because the NSC Number provided is different from the NSC Number associated to the PT number managed by the Branch.
1.12	Confirmation	Start Date mismatch	The submission failed because the Start Date provided at the time of upload is different from the Start Date in the submitted file. They must be the same.
1.13	Confirmation	End Date mismatch	The submission failed because the End Date provided at time of upload is different from the End Date in the submitted file. They must be the same.
2.1	Validation	No XML document was loaded	The submission failed because an unexpected internal error was encountered while attempting to load the XML document.
2.2	Validation	XML Schema validation error	The submission failed because an error was encountered while attempting to validate the XML document with the schema.
2.3	Validation	Error reading the XML document	The submission failed because an unexpected internal error was encountered while attempting to read the XML document.
3.1	Verification	Error reading the XML document	The submission failed because an unexpected internal error was encountered while attempting to read the XML document.
3.2	Verification	Error processing XML document against schema	The submission failed because an unexpected internal error was encountered while processing the XML document with the schema.
3.7	Verification	Shift ID not unique	The submission failed because there are duplicate Shift IDs in the submission. Shift IDs must be unique within a submission.

Error Code	Processing Stage	Short Description	Long Description
3.8	Verification	Trip ID not unique	The submission failed because there are duplicate Trip IDs in the submission. Trip IDs must be unique within a submission.
3.9	Verification	Shift in the trip not found	The submission failed because a trip contained in the Trip Data refers to a shift that was not found in the Shift Data. All shifts referenced by trips in Trip Data must exist in the Shift Data.
3.10	Verification	Internal System error	The submission failed because an unexpected internal system error was encountered. Contact the Passenger Transportation Branch and reference this error code and submission ID.
3.11	Verification	Date or Date/Time is not in UTC format	The submission failed because a Date or Date/Time field is not in UTC format. All dates must be in the format specified by the Data Submission Guide.
3.12	Verification	Vehicle Jurisdiction Code invalid	The submission failed because the Vehicle Jurisdiction Code is invalid. Refer to the Trip Data Submission Guide and Specification for list of valid codes.
3.13	Verification	Driver Licence Jurisdiction Code invalid	The submission failed because the Driver Licence Jurisdiction code is invalid. Refer to the Trip Data Submission Guide and Specification for list of valid codes.
3.14	Verification	Vehicle Assignment not within Submission dates	The submission failed because one or more vehicle assignment is outside of the submission date range. Vehicle Assignment Date/Time must be within the Submission date range for all trips.
4.X	Quality Assurance	Data quality problems	The submission was loaded to the database, but one or more data quality problems were found.
4.1	Quality Assurance	Invalid Trip Distance	The completed trip has a distance of zero km, however the location is different for the pick-up and drop-off. The Trip Distance should be greater than zero.
4.2	Quality Assurance	Internal error	The trip refers to a shift that was not found in the Shift Data. Contact the Passenger Transportation Branch and reference this error code and submission ID.

Error Code	Processing Stage	Short Description	Long Description
4.3	Quality Assurance	Shift Start Time after Shift End Time	The Shift Data has a Shift Start Date/Time that is later than the Shift End Date/Time. The Shift Start Date/Time must be before the Shift End Date/Time.
4.4	Quality Assurance	Shift is outside submission date range	The Shift Start Date/Time and the Shift End Date/Time are both outside of the submission date range. Either the start or end shift D/T (or both) must be within the submission date range.
4.5	Quality Assurance	Invalid Shift Duration	The Shift Data has a duration of zero minutes. The Shift Duration must be greater than zero minutes.
4.6	Quality Assurance	Pickup Departure Time not found	The trip has no Pickup Departure Date/Time. All trips that are completed must have a Pickup Departure Date/Time.
4.7	Quality Assurance	Vehicle Assignment not within Shift	The trip has a Vehicle Assignment before the Shift Start Date/Time or after the Shift End Date/Time. Vehicle Assignment must be within the Shift.
4.8	Quality Assurance	Trip time is after Shift End time	The Trip Data has one or more trip Date/Time entries (excluding hail initiation) later than the associated Shift End Date/Time. All D/T entries must be on or before the Shift End D/T.
4.9	Quality Assurance	Vehicle Assignment Latitude/Longitude is invalid	The Vehicle Assignment location is not within the latitude/longitude boundary. Latitude must be within 48 and 61 degrees, and Longitude must be within -141 and -111 degrees.
4.10	Quality Assurance	Hail Request Latitude/Longitude is invalid	The Hail request location is not within the latitude/longitude boundary. Latitude must be within 48 and 61 degrees, and Longitude must be within -141 and -111 degrees.
4.11	Quality Assurance	Pickup Latitude/Longitude is invalid	The Pickup location is not within the latitude/longitude boundary. Latitude must be within 48 and 61 degrees and Longitude must be within -141 and -111 degrees.
4.12	Quality Assurance	Dropoff Latitude/Longitude is invalid	The Dropoff location is not within the latitude/longitude boundary. Latitude must be within 48 and 61 degrees and Longitude must be within -141 and -111 degrees.

Error Code	Processing Stage	Short Description	Long Description
4.13	Quality Assurance	Vehicle Assignment Time after Pick-up Arrival Time	The Trip Data has a Vehicle Assignment Date/Time that is later than the Pick-up Arrival Date/Time. The Vehicle Assignment Date/Time must be on or before the Pick-up Arrival Date/Time.
4.14	Quality Assurance	Pick-up Arrival Time after Pick-up Depart Time	The Trip Data has a Pick-Up Arrival Date/Time that is later than the Pick-up Departure Date/Time. The Pick-up Arrival Date/Time must be on or before the Pick-up Departure Date/Time.
4.15	Quality Assurance	Pick-up Departure Time after Drop-off Arrival Time	The Trip Data has a Pick-Up Departure Date/Time that is later than the Drop-off Arrival Date/Time. The Pick-up Departure Date/Time must be before the Drop-off Arrival Date/Time.
4.16	Quality Assurance	Drop-off Arrival Time after Drop-off Depart Time	The Trip Data has a Drop-off Arrival Date/Time later than the Drop-off Departure Date/Time. The Drop-off Arrival Date/Time must be earlier or equal to the Drop-off Departure Date/Time.
4.17	Quality Assurance	Passenger Count exceeds max	The Trip data has a Passenger Count greater than 11. TAXI's or OTHERPDV's must not have a Passenger Count greater than 11.
4.18	Quality Assurance	Invalid Trip Duration	The trip has a Trip Duration of zero minutes, however the location is different for the pick-up and drop-off. The Trip Duration should be greater than zero.
4.19	Quality Assurance	Hail Init time after vehicle assignment time	The Trip Data has a Hail Initiation Date/Time that is later than the Vehicle Assignment Date/Time. The Hail Initiation Date/Time must be on or before the Vehicle Assignment Time Date/Time.
4.20	Quality Assurance	Pickup Arrival time after Drop Off Arrival time	The Trip Data has a Pickup Arrival date/Time that is later than the Drop Off Arrival Date/Time. The Pickup Arrival Date/Time must be on or before the Drop Off Arrival Time Date/Time.
4.21	Quality Assurance	Pickup Arrival Time not found	The trip has no Pickup Arrival Date. All trips that are not cancelled must have a Pickup Arrival Date/Time.
4.22	Quality Assurance	Dropoff Arrival Time not found	The trip has no Dropoff Arrival Date/Time. All trips that are completed must have a Dropoff Arrival Date/Time.

Error Code	Processing Stage	Short Description	Long Description
4.23	Quality Assurance	Pickup Latitude/Longitude not found	The trip has no Pickup latitude/longitude. All trips that are not cancelled must have a Pickup Latitude/Longitude.
4.24	Quality Assurance	Dropoff Latitude/Longitude not found	The trip has no Dropoff latitude/longitude. All trips that are completed must have a Dropoff Latitude/Longitude.
4.25	Quality Assurance	Passenger Count exceeds max	The Trip data has a Passenger Count greater than 24. TNS or LIMO's must not have a Passenger Count greater than 24.
4.26	Quality Assurance	Passenger Count exceeds max	The Trip data has a Passenger Count greater than 60. ICB must not have a Passenger Count greater than 60.
4.27	Quality Assurance	Trip Distance exceeds max	The Trip Data has a Trip Distance greater than 2000 KM. A Trip distance should typically be less than or equal to 2000 KM.
4.28	Quality Assurance	Trip Fare Amount exceeds max	The Trip Data has a Trip Fare Amount greater than CAD 3000. A Trip amount should typically be less than or equal to CAD 3000.
4.29	Quality Assurance	Trip Duration exceeds max	The Trip Data has a Trip Duration greater than 600 minutes. A Trip duration should typically be less than or equal to 600 minutes.
4.30	Quality Assurance	Vehicle Assignment after Pick-up Departure	The Trip Data has a Vehicle Assignment Date/Time that is later than the Pick-up Departure Date/Time. The Vehicle Assignment Date/Time must be on or before the Pick-up Departure Date/Time.
5.0	Quality Assurance	Data successfully loaded	The submitted data was loaded successfully to the database without any errors.
PASS	Quality Assurance	Passed	All Trip Data and Shift Data in the submission has been successfully loaded to the database and no errors were encountered during processing.
NOERRORS	Verification	No Errors	No errors were detected in the submitted file.

10 Appendix E: Abbreviations

Table 7: Abbreviations

<i>Abbreviation</i>	<i>Details</i>
API	Application Programming Interface
CR	Carriage Return
CSV	Comma-Separated Value
DB	Database
GPS	Global Positioning System
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
ICBC	Insurance Corporation of British Columbia
ISO	International Organization for Standardization
IVR	Interactive voice response
JSON	JavaScript Object Notation
JWT	Java Web Token
JWE	Java Web Encryption
LF	Line Feed
MOTI	Ministry of Transportation and Infrastructure
PROD	Production
PT	Passenger Transportation
PTDW	Passenger Transportation Data Warehouse
PTMP	Passenger Transportation Modernization Project
REST	Representational State Transfer
SQL	Structured Query Language
TNS	Transportation Network Services
URL	Uniform Resource Locator
UTC	Coordinated Universal Time
XML	Extensible Markup Language
XSD	XML Schema Definition
QA	Quality Assurance