Data Set Description and Dictionary

Route 19 Transit Data

November 27, 2014

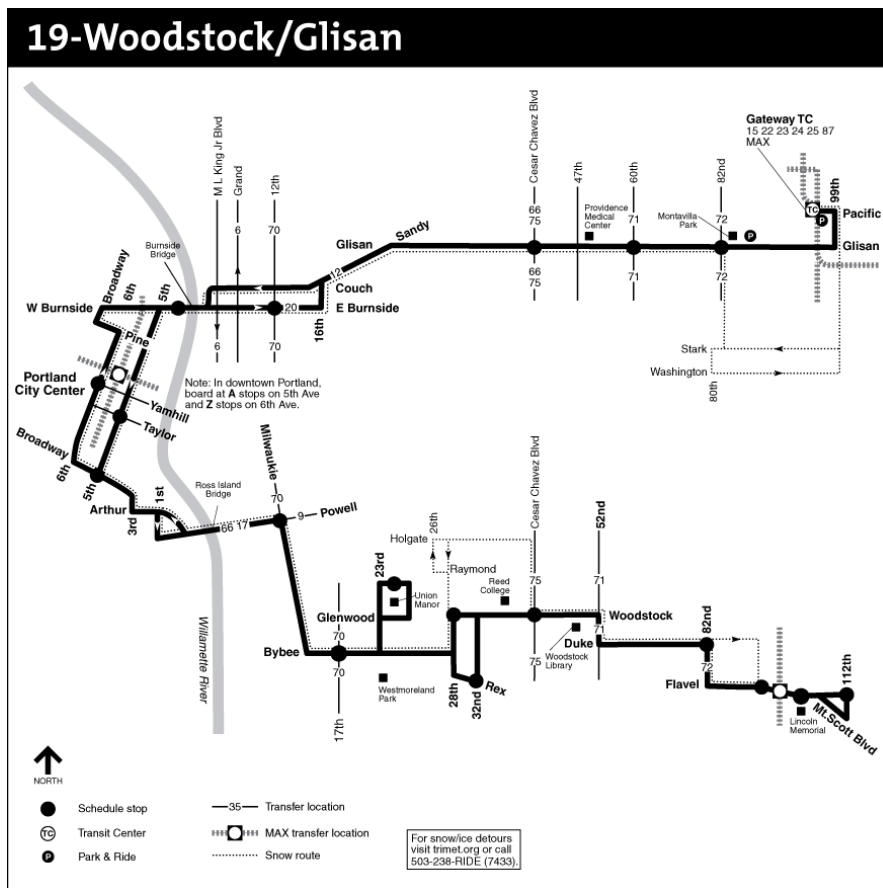Portland State
UNIVERSITY

Table of Contents

1   Route 19 Data Description

TriMet Bus Dispatch System (BDS) data for Route 19 for 2009 for the NORTH part of the route is included in this schema. The BDS includes automatic vehicle location via a satellite based Global Positioning System (GPS) on all buses as well as automatic passenger counters installed on a majority of the existing fleet and all new bus acquisitions. The BDS records contain the route number, direction, trip number, date, vehicle number, operator identification, bus stop identification, stop arrival time, stop departure time, boardings, alightings, and passenger load. Also recorded is whether the doors of the bus were opened, whether the lift was used, the dwell time, maximum speed between previous and current stop, and GPS coordinates.

1.1   Stops Amenities Data

A table providing the stop name and transit stops and amenities.

1.2   Bus Data and Tables

Bus data includes a schedule table and a table with stop event and automatic passenger counter (APC) data. The scheduled stop time table provides schedule information for the two-month

time window. To facilitate ease of use, the schedule table includes an entry for each route and each day. This structure does replicate information, but makes it very clear which route schedule applies to which date, particularly useful for holiday and weekend schedules.

The stop_event table provides information about bus activity including arrive and leave time from bus stops, passenger ons and off, dwell time, lift usage and other detailed data. A stop record is created whenever a vehicle drives past a bus stop that it is scheduled to serve. In this case, the bus records the time that it arrived and left the vicinity of the stop. The vicinity of the stop is currently defined as the area within a 30-meter (about 98 feet) radius of the recorded bus stop location. A stop record is also created whenever a vehicle door is opened. Due to the age of the system, some busses have malfunctioning Automatic Vehicle Location (AVL) units and thus a limited amount of stop data is missing.

Bus data is obtained from the TriMet Bus Dispatch System (BDS.) Bus data is obtained from the TriMet busses each evening and is then processed by a BDS data processing program. When the BDS unit fails to record times for one or two stops the BDS data processing programs generates stop event rows with estimated times. These times are estimated by interpolating between the prior and following recorded times on the basis of the distance between the stops. The Data Source column identifies stop event rows that are created by interpolation.

2   Data Dictionary

2.1   Stop Amenities

Table 1 Data Dictionary for stop_amenities

Column Name	Description	Sample Data
stop_id	Numeric stop id. Correlates to location_id in data tables	2
lat	Latitude. Info not available for all stops	45.421
long	Longitude. Info not available for all stops	-122.675
loc_desc	Text description of the location of the stop.	A Ave & Chandler
amenity_code	Description of Amenity at Stop. Multiple Rows Per Stop In Terms of Amenities	BACKPAV
amenity_code_des	Text Description of Amenity at Stop.	Backdoor Ldng-Paved
amenity_group	Description of Amenity Type	PAVEMENT
amenity_group_desc	Text description of Amenity Type	Pavement Features
trip_plan_desc	Used for Trip Routing Software	BackLng Paved

2.2 Amenities By Stop

A table that indicates the features at each stop with Boolean attributes. The definitions of the column names are below and also in the table. If the feature is located at the stop the value of the column is TRUE, if it is not the value is FALSE

Table 2 Data Dictionary for amenities_by_stop

Attribute Name	Attribute Type	Description (including the amenity type and description for the amenity group)		
stop_id	integer	Numeric stop id. Correlates to location_id in data tables		
lat	double precision	Latitude. Info not available for all stops		
long	double precision	Longitude. Info not available for all stops		
loc_desc	character varying(100)	Text description of the location of the stop.		
ace	boolean	Alignment Exclusive	AC	Alignment Classification
acne	boolean	Alignment Non-Exclusive	AC	Alignment Classification
acse1	boolean	Alignment Semi-Exclusive1	AC	Alignment Classification
acse2	boolean	Alignment Semi-Exclusive2	AC	Alignment Classification
acse3	boolean	Alignment Semi-Exclusive3	AC	Alignment Classification
adpanel3	boolean	Three-Sided Advertising Panel	ADPANEL	Advertising Panel
adpanels	boolean	Standard Advertising Panel	ADPANEL	Advertising Panel
arrdispd	boolean	TransitTracker (Digital) Display	ARRDISP	Transit Tracker Display
arrdispl	boolean	TransitTracker (LED) Display	ARRDISP	Transit Tracker Display
asaudio	boolean	Audio Sign	ACTVSIGN	Active Signs
ascdw_dw	boolean	Countdown Walk/Don't Walk Sign	ACTVSIGN	Active Signs
aspedfl	boolean	Pedestrian Flashing Red Light	ACTVSIGN	Active Signs
aspedti	boolean	Pedestrian Train Icon	ACTVSIGN	Active Signs
asw_dw	boolean	Standard Walk/Don't Walk Sign	ACTVSIGN	Active Signs
baabgate	boolean	Auto/Bike Gate	BARRIER	Crossing Barrier
baabpedg	boolean	Auto/Bike/Pedestrian Gate	BARRIER	Crossing Barrier
backpav	boolean	Backdoor Ldng-Paved	PAVEMENT	Pavement Features
bapedgte	boolean	Automatic Pedestrian Gate	BARRIER	Crossing Barrier
bapedswg	boolean	Pedestrian Swing Gate	BARRIER	Crossing Barrier
baswends	boolean	Sidewalk Ends	BARRIER	Crossing Barrier
baxwclos	boolean	Crosswalk Closed	BARRIER	Crossing Barrier
bcidarp	boolean	4-sided Rail Pylon	BCID	Schedule Display Unit
bcidatrp	boolean	2-sided Rail Pylon	BCID	Schedule Display Unit
bcidf	boolean	FreeStanding Info Display	BCID	Schedule Display Unit

bcidmb	boolean	Bus Mall Display Cabinet	BCID	Schedule Display Unit
bcidms	boolean	Shelter Info Display (Mall Silver)	BCID	Schedule Display Unit
bcidp	boolean	Pole Mounted Info Display	BCID	Schedule Display Unit
bcidp20d	boolean	20" Double-Sided Pole Mounted Info Display	BCID	Schedule Display Unit
bcidp20s	boolean	20" Single-Sided Pole Mounted Info Display	BCID	Schedule Display Unit
bcidp26d	boolean	26" Double-Sided Pole Mounted Info Display	BCID	Schedule Display Unit
bcidp26s	boolean	26" Single-Sided Pole Mounted Info Display	BCID	Schedule Display Unit
bcidpplq	boolean	Pole Mounted Info Display, Plaque Style	BCID	Schedule Display Unit
bcidpslr	boolean	Pole Mounted Info Display w/solar light bttns	BCID	Schedule Display Unit
bcidptft	boolean	Blue Three-Sided TF Pole Mounted Info Display	BCID	Schedule Display Unit
bcidptt	boolean	Pole Mounted Info Display, Transit Tube	BCID	Schedule Display Unit
bcidr	boolean	Rail Display Cabinet	BCID	Schedule Display Unit
bcids	boolean	Shelter Info Display	BCID	Schedule Display Unit
bcidsp	boolean	Shelter Info Display, Plaque	BCID	Schedule Display Unit
bcidtfdb	boolean	Blue Two-Sided TF Pole Mounted Info Display	BCID	Schedule Display Unit
bikelock	boolean	Bike Locker at Stop	BIKESTOR	Bike Storage Device
bikerack	boolean	Bike Rack at Stop	BIKESTOR	Bike Storage Device
bikeshop	boolean	Bike Shop	BUSINESS	Business Enterprise
bnchadvl	boolean	Advertisement Bench - Lamar	BENCH	Bench
bnchadvo	boolean	Advertisement Bench - Other	BENCH	Bench
bnchbasc	boolean	Tri Met Basic Bench	BENCH	Bench
bnchmall	boolean	Transit Mall-Style Bench	BENCH	Bench
bnchprem	boolean	Premium Bench	BENCH	Bench
bnchpriv	boolean	Privately Owned Bench	BENCH	Bench
bnchrail	boolean	Rail Bench	BENCH	Bench
bnchsmd	boolean	Double Simme Seat - Stand Alone	BENCH	Bench
bnchsmdp	boolean	Double Simme Seat Attached to Pole	BENCH	Bench
bnchsms	boolean	Single Simme Seat - Stand Alone	BENCH	Bench
bnchsmsp	boolean	Single Simme Seat Attached to Pole	BENCH	Bench
camulti	boolean	Multi-Use Pathway	CA	Grade Crossing Alignment
castnpth	boolean	Street Without Multi-Use Path	CA	Grade Crossing Alignment
castreet	boolean	Street (Only)	CA	Grade Crossing Alignment
caxwarch	boolean	Crosswalk - Architectural	CA	Grade Crossing Alignment
caxwlad	boolean	Crosswalk - Ladder	CA	Grade Crossing Alignment
caxwothr	boolean	Crosswalk - Other	CA	Grade Crossing Alignment
caxwstrp	boolean	Crosswalk - Stripe	CA	Grade Crossing Alignment

cazxing	boolean	Z-Crossing	CA	Grade Crossing Alignment
chsw	boolean	Sidewalk Channeling	CH	Pedestrian Channeling
chxw	boolean	Crosswalk Channeling	CH	Pedestrian Channeling
crosswlk	boolean	Crosswalk	CROSSWLK	Crosswalk
cttfi	boolean	Cross Traffic Train Flash Icon	TFICON	Train Flashing Icon
curbcut	boolean	Curbcut near door Landing	PAVEMENT	Pavement Features
dsbikeln	boolean	Designated Bike Lane	DSBIKELN	Designated Bike Lane
elevator	boolean	Elevator	ELEVATOR	Elevator
foodserv	boolean	Food Service Vendor	BUSINESS	Business Enterprise
frontpav	boolean	Frontdoor Ldng-Paved	PAVEMENT	Pavement Features
lghtextr	boolean	Street/Pedestrian Lighting near stop	LIGHTING	Available Lighting
lghtpls	boolean	Bus Stop Pole Solar Light	LIGHTING	Available Lighting
lghtshel	boolean	Non-solar Shelter Light	LIGHTING	Available Lighting
lghtshsl	boolean	Solar Shelter Light, Large	LIGHTING	Available Lighting
lghtshsr	boolean	Solar Shelter Light, Regular	LIGHTING	Available Lighting
pl2inst	boolean	2 inch Street Pole	POLE	Pole
pl4by4	boolean	4 X 4 Street Pole	POLE	Pole
platcntr	boolean	Center Platform	PLATTYPE	Platform Type
platfs	boolean	Farside Platform	PLATTYPE	Platform Type
platmlti	boolean	Multiple Platform	PLATTYPE	Platform Type
platoss	boolean	One Single Side Platform	PLATTYPE	Platform Type
plattss	boolean	Two Single Side Platform	PLATTYPE	Platform Type
plbay	boolean	Bay Pole	POLE	Pole
plmallb	boolean	Mall Pole Bus Stop	POLE	Pole
plmallm	boolean	Mall Pole Max Stop	POLE	Pole
plmetlut	boolean	Metal Utility Pole	POLE	Pole
plmisc	boolean	Miscellaneous Pole	POLE	Pole
ploct	boolean	Octagonal (Blue) Pole	POLE	Pole
plsqtb	boolean	Square Tube Pole	POLE	Pole
plstrtcr	boolean	Streetcar Pole	POLE	Pole
pltfblck	boolean	Trueform Pole - Black	POLE	Pole
pltfblue	boolean	Trueform Pole - Blue	POLE	Pole
plwoodut	boolean	Wood Utility Pole	POLE	Pole
protect	boolean	Misc Weather Protection	PROTECT	Weather Protection
psbikesn	boolean	Bike Sign	POSTSIGN	Post Treatment
psdne	boolean	Do Not Enter Sign	POSTSIGN	Post Treatment
psdsstop	boolean	Downsized Stop Sign	POSTSIGN	Post Treatment
pslbw	boolean	Look Both Ways Sign	POSTSIGN	Post Treatment
psnt	boolean	No Trespassing Sign	POSTSIGN	Post Treatment
psother	boolean	Other Sign	POSTSIGN	Post Treatment
pspedpro	boolean	Pedestrian Prohibited Sign	POSTSIGN	Post Treatment
pspedxng	boolean	Pedestrian Crossing Sign	POSTSIGN	Post Treatment
pttfi	boolean	Parallel Traffic Train Flash Icon	TFICON	Train Flashing Icon
pvdne	boolean	Do Not Enter Pavement Treatment	PAVESIGN	Pavement Treatment
pvdsh	boolean	Don't Stand Here Pavement Treatment	PAVESIGN	Pavement Treatment
pvstop	boolean	Stop Here Pavement	PAVESIGN	Pavement Treatment

		Treatment		
pvtact	boolean	Tactile Pavement Treatment	PAVESIGN	Pavement Treatment
resaccnt	boolean	Restricted Access/No Turn	RESACC	Restricted Access Sign
sh1b	boolean	Downtown Bus Shelter, Type 1	SHELTER	Shelter
sh1bs	boolean	Downtown Bus Shelter, Type 1 - Short	SHELTER	Shelter
sh2b	boolean	Downtown Bus Shelter, Type 2	SHELTER	Shelter
sh2bn	boolean	Downtown Bus Shelter, Type 2 - Narrow	SHELTER	Shelter
sh2bns	boolean	Downtown Bus Shelter, Type 2 - Narrow, Short	SHELTER	Shelter
sh2l	boolean	Mall MAX Shelter, Type2	SHELTER	Shelter
sh3b	boolean	Downtown Bus Shelter, Type 3	SHELTER	Shelter
sh3bs	boolean	Downtown Bus Shelter, Type 3 - Short	SHELTER	Shelter
sh4b	boolean	Downtown Bus Shelter, Type 4	SHELTER	Shelter
sh4bl	boolean	Downtown Bus Shelter, Type 4 - Long	SHELTER	Shelter
shboxa	boolean	Almnm Box A	SHELTER	Shelter
shboxb	boolean	Almnm Box B	SHELTER	Shelter
shbrsca	boolean	Brasco A	SHELTER	Shelter
shbrscam	boolean	Brasco A - Mall Silver	SHELTER	Shelter
shbrscax	boolean	Brasco AX	SHELTER	Shelter
shbrscb	boolean	Brasco B	SHELTER	Shelter
shbrscbx	boolean	Brasco BX	SHELTER	Shelter
shdaya	boolean	Daytech A	SHELTER	Shelter
shdayab	boolean	Daytech AB Hybrid	SHELTER	Shelter
shdayax	boolean	Daytech AX	SHELTER	Shelter
shdayb	boolean	Daytech B	SHELTER	Shelter
shdaybb	boolean	Daytech BB	SHELTER	Shelter
shdaybbf	boolean	Daytech BB with front panes	SHELTER	Shelter
shdaybx	boolean	Daytech BX	SHELTER	Shelter
shdblbxw	boolean	Brasco Double BX, Wide Shelter	SHELTER	Shelter
shdbll	boolean	Double L Shelter	SHELTER	Shelter
shhcap	boolean	High Capacity Shelter	SHELTER	Shelter
shmalln	boolean	Mall - North	SHELTER	Shelter
shpriv	boolean	Privately Owned Shelter	SHELTER	Shelter
shrocka	boolean	Rockwell A	SHELTER	Shelter
shrockab	boolean	Rockwell AB Hybrid	SHELTER	Shelter
shrockax	boolean	Rockwell AX	SHELTER	Shelter
shrockb	boolean	Rockwell B	SHELTER	Shelter
shrockbx	boolean	Rockwell BX	SHELTER	Shelter
shsboxb	boolean	Steel Box B	SHELTER	Shelter
shthree	boolean	3-Entrance Shelter	SHELTER	Shelter

shtnnl	boolean	Tunnel Style Shelter	SHELTER	Shelter
shtolrbx	boolean	Tolar BX	SHELTER	Shelter
sidewlk	boolean	Sidewalk at Stop	PAVEMENT	Pavement Features
snbay	boolean	Bay Sign	SIGN	Sign
snbusz	boolean	Bus Zone Sign	SIGN	Sign
snmallp	boolean	Mall Sign (plate)	SIGN	Sign
snmaxblk	boolean	MAX Sign - Black	SIGN	Sign
snmnbz	boolean	Half Moon Bus Zone	SIGN	Sign
snmoon	boolean	Half Moon Route Sign	SIGN	Sign
snmoonl	boolean	Half Moon LIFT Sign	SIGN	Sign
snrect	boolean	Rectangle Sign	SIGN	Sign
snrectl	boolean	Rectangle LIFT Sign	SIGN	Sign
sntemp	boolean	Styrene Temporary Bus Stop Sign	SIGN	Sign
sntempm	boolean	Metal Temporary Bus Stop Sign	SIGN	Sign
sntrufrm	boolean	Trueform Sign	SIGN	Sign
streqsig	boolean	Bus Stop Request Signal	STREQSIG	Bus Stop Request Signal
tcold	boolean	Old Style Trashcan	TRASHCAN	Garbage Can
tcpole	boolean	Pole Trashcan (attached to bus stop pole)	TRASHCAN	Garbage Can
tcpriv	boolean	Non-TriMet Trashcan	TRASHCAN	Garbage Can
tcrail	boolean	Rail Trashcan	TRASHCAN	Garbage Can
tcrecycl	boolean	Recycle Trashcan	TRASHCAN	Garbage Can
tcrqtc	boolean	Rose Quarter TC Area Trashcan	TRASHCAN	Garbage Can
tcshel	boolean	Shelter Trashcan (attached to Shelter)	TRASHCAN	Garbage Can
telephon	boolean	Pay Telphone at/near Location	TELEPHON	Pay Telephone
tickmac1	boolean	Ticket Vending Machine Type 1	TICKMACH	Ticket Machine
tickmac3	boolean	Ticket Vending Machine Type 3	TICKMACH	Ticket Machine
tickmac4	boolean	Ticket Vending Machine Type 4 (card only)	TICKMACH	Ticket Machine
tickmac5	boolean	Ticket Vending Machine Type 5	TICKMACH	Ticket Machine
traffsig	boolean	Traffic Signal	TRAFFSIG	Signal Ctrl Street Xing
tsabs	boolean	Automatic Block System	TRACKSIG	Track Signal Type
tscombo	boolean	Combination ABS/Preempt	TRACKSIG	Track Signal Type
tsprempt	boolean	Preempt Signal	TRACKSIG	Track Signal Type
tstrfc	boolean	Traffic Signal	TRACKSIG	Track Signal Type
ttpvarch	boolean	Paved Architectural Track	TRACTYPE	Nearby Track Type
tttiball	boolean	Tie and Ballast Track	TRACTYPE	Nearby Track Type
windscrn	boolean	Wind Screen	WINDSCRN	Wind Screen

2.3 Amenity Code

Table 3 Data Dictionary for amenity_code

Column NameColumn	Type	Description
amenity_code	character varying	Description of Amenity at Stop. Multiple Rows Per Stop In Terms of Amenities
amenity_code_desc	character varying	Text Description of Amenity at Stop.
amenity_group	character varying	Description of Amenity Group
amenity_group_desc	character varying	Text description of Amenity Group

2.4 Route 19 Stop Level Data

Table 4 Data Dictionary for Route 19 Transit Bus Stop Event File

Attribute Name	Attribute Type	Description
service_date	timestamp	The calendar date associated with the service. Typically this is the date the vehicle leaves the garage. When the vehicle is on the road at midnight, the service provided after midnight is associated with the previous day. Such late service is usually completed by 3:00 AM.
vehicle_number	integer	The Vehicle Number of the bus recording the data. This is the number that is painted on both the interior and exterior of the bus. In the data, the Vehicle Number is stored as a five-character field with leading zeros. For example, the Vehicle Number for bus 512 is represented as '00512'.
leave_time	integer	When the bus is no longer within 30 meters of the bus stop location a departure time is recorded. The departure time is recorded at all stops even if the bus doesn't stop to serve passengers. (See Figure 2) (Units: seconds post midnight)
train	integer	The Train or Block number stored as a number. Scheduled trips are blocked together into trains for assignment to vehicles.
route_number	integer	The internal numeric designation of the Route. For Example, Route 1 has the Route Number of 1 for the Greeley Line and 101 for the Vermont Line.
direction	integer	A one digit numeric field indicating the direction of travel for the scheduled trip. The field contains either the character Zero or One, where 0 specifies outbound and 1 specifies inbound. On cross-town routes 0 often specifies Northbound and 1 often specifies Southbound.
service_key	character(1)	A designation for the types of service provided on

		different calendar dates. Common Service Keys, such as 'W', 'S', and 'U', specify regular Weekday, Saturday, and Sunday service.
trip_number	integer	A number that provides the most specific identification of a scheduled trip.
stop_time	integer	The scheduled or estimated time for the departure from a particular stop location on a particular trip. When the stop location is a timepoint the Stop Time is the scheduled time. At other stops the Stop Time is estimated by linear interpolation using the distances from the stop to the prior and next timepoint. The time is expressed in seconds after midnight, from the start of the service day. The values typically range from about 18,000 for 5:00 AM, through 86,400 for 12:00 PM, and up to roughly 97,200 for 3:00 AM of the following calendar day. (Units: seconds past midnight)
arrive_time	integer	When the vehicle passes a stop without opening a door, this field contains the time the vehicle arrived within the vicinity of the stop. The vicinity of a stop is the area within a 30-meter (98 feet) radius of the recorded stop location. Otherwise, this field contains the time the door was first opened. The time is expressed in seconds after midnight, from the start of the service day. (See Figure 2) (Units: seconds past midnight)
dwell	integer	The number of seconds the door is open. (See Figure 2.)
location_id	integer	The Location ID, an integer number that uniquely identifies a stop location. Correlates to stop_id in Transit Stops file (transit_stops.csv).

door	integer	The number of times the door was opened at the stop. The value for door opening ranges from 0 to 2.
		    0 = no door was opened
		    1 = front door was opened
		    2 = both front and rear door was opened

lift	integer	The number of times the vehicle lift was used at the stop.
ons	integer	The raw APC count of the number of persons boarding the vehicle.
offs	integer	The raw APC count of the number of persons leaving the vehicle. See Ons for more information.
estimated_load	integer	Estimated load when leaving the stop from adjusted APC data. This field will be zero if the APC counts were identified as invalid.
maximum_speed	integer	Maximum speed in mph since prior stop record. This

		value is not reliable in areas where GPS signals are reflected, such as areas with tall building and on some bridges. Such reflected signals create multi-path interference that may cause GPS units to generate false coordinates.
train_mileage	float	Cumulative distance in miles from the start of the train's recorded service. This distance is the sum of the tenth mile odometer ticks in the current and all prior stop records generated during the service day for the block.
pattern_distance	float	An estimate of the linear distance, measured in feet, from the beginning of the route's pattern to the vehicle's current location. The estimate is derived from the position of the vehicle, the distance of the vehicle from nearby stops, and the distance of those stops from the beginning of the route pattern. The measure identifies the vehicle's position in relation to the scheduled route rather than the distance travelled by the bus. Since the estimate is generated independently from the position of each stop, it is non-cumulative and will not necessarily increase monotonically. The measure may decrease if the vehicle backtracks along the route or in rare situations where the estimate is unstable because of unusual route geometry. The Pattern Distance column provides a convenient way to relate the recorded stop information to other route features, such as shape points, that are maintained within a route based linear referencing system.
location_distance	float	The distance between the vehicle position recorded by BDS and the location of the scheduled stop. The unit of the measure is feet and the number is stored as a floating-point value.
x_coordinate	float	This column contains the X Coordinate of the stop location in the local State Plane Coordinate System. This coordinate value is also called the Easting. The coordinate system is specified as the SPCS83-Oregon North Zone. The unit of the measure is International Feet.
y_coordinate	float	This column contains the Y Coordinate of the stop location in the local State Plane Coordinate System. This coordinate value is also called the Northing.
data_source	integer	A numeric field indicating the source of the row data

		with the following codes.
		0 Row added during post-processing.
		1 Stop, but not Location ID, recorded by vehicle.
		2 Stop and Location ID recorded by vehicle.
schedule_status	integer	The Schedule Status identifies the relationship between the recorded stop information and the schedule of service. (See Table of Schedule Status Descriptions below.)
This field flags stop activity in relation to the schedule.
0 = off-trip stop
1 = unscheduled stop
2 = regular stop
3 = pseudo stop (unofficial time point)
4 = time point (official time point)
5 = first stop in trip
6 = last stop in trip
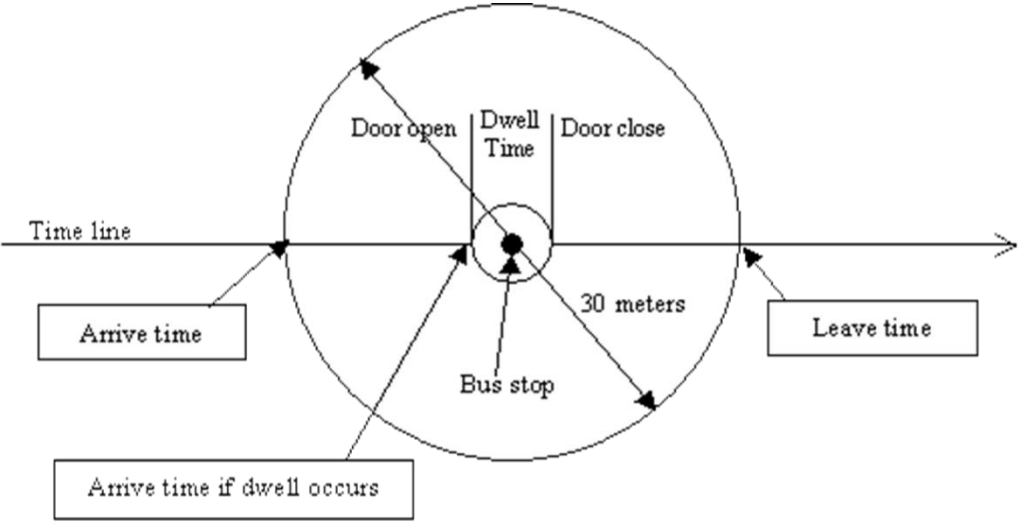
Figure 2 Diagram with representation of Arrive Time, Leave Time and Dwell Time