Regional Truck Parking Information Management System (TPIMS) Data Exchange Specification Document

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Overview

The Partnership hopes to attract application developers to use the free open-source TPIMS parking data coming from each state. This document summarizes the standard data feeds that each state will provide for their publicly and privately owned (as applicable) truck parking sites. The data elements and formatting were agreed upon by the eight states participating in the MAASTO TPIMS project, and are intended to set a standard for future projects.

The data feed contains JSON scripting language that all third-party application developers will need to display the TPIMS data on their platforms. There are three separate data feeds, each with their own function. The data feeds include a dynamic public feed, static public feed, and dynamic archive only feed. The dynamic public feed provides the information that will be updated every five minutes (minimum) system wide. The static public feed contains categories that will remain constant for each individual site (such as number of total parking spots at a site). The dynamic archive only feed will be used for performance metrics that have been defined to measure the overall effectiveness of the system.

Wisconsin is currently doing testing of the feed at four sites that have been outfitted with TPIMS technology. Vendors are being granted access to the dynamic and static public data feeds (see next two sections) so that they can integrate the information into their platform in advance of the system launch in January 2019. Vendors will see the exact same coding format for all other partnership states as they will in Wisconsin. This consistency will make it easier for developers to use the data.

The information below provides greater detail of the information that will go in each data feed. Each section will also have a link to access the live data feed for each of the four sites in Wisconsin.

Dynamic Public Feed

The dynamic public feed contains seven data fields, which are updated once every one to five minutes to provide real-time data to users. The fields in the dynamic public feed are:

JSON

Element	Type	Description
siteId	string	Unique fixed-length identifier including state, route number, route type, reference post, side of road and unique location number or name abbreviation. See more detailed description in appendix.
timeStamp	string	Provides the date and time that the site record was last updated. See more detailed data and time representation description in appendix.
timeStampStatic	String	Provides the date and time that the site static record was last updated. See more detailed data and time representation description in appendix.
reportedAvailable	string	Number of available spots shared through the data feed. The number is capped at the total number of parking spots at the site and "Low" is reported if the low threshold is reached.
trend	string	Optional. Reports whether the site is emptying, steady or filling. Accepted values: **"CLEARING"** / **"STEADY"** / **"FILLING"** / **null**. See more detailed description in appendix.
open	boolean	Will report open unless the parking site is closed to parking for maintenance or another situation. Possible values: **true** / **false** / **null**
trustData	boolean	This flag will report that the site is operating normally. Possible reasons for a "false" value include periods where the site is under construction while open to traffic, IT maintenance windows, or equipment failures. Possible values: **true** / **false** / **null**
capacity	Number	Total number of parking spots within the site.

Dynamic Public Feed - example

JSON format

[{"siteId":"WI00094IS0012400ERSTARE53","timeStamp":"2016-08-15T20:35:15Z","timeStampStatic":"2015-05-03T12:24:19Z","reportedAvailable":"25","trend":"FILLING","open":true,"trustData":"true","capacity":41}]

Dynamic Public Feed - live URL

https://transportal.cee.wisc.edu/TPIMS/dynamic

Static Public Feed

The static public feed contains 19 data fields updated on an as-needed basis. The expectation is that this information will rarely change and will only need to be pulled one time after a change is made. As presented above, the dynamic feed contains a timestamp of when the static feed was last updated. The fields in the static public data feed are:

JSON

Element	Type	Description
siteId	string	Unique fixed- length identifier including state, route number, route type, reference post, side of road and unique location number or name abbreviation. See more detailed description in appendix.
timeStamp	string	Provides the date and time that the site record was last updated. See more detailed data and time representation description in appendix.
relevantHighway	string	Provides the highway from which the rest area can be accessed. See highway nomenclature in appendix.
referencePost	string	Provides the Reference Post (mile marker) for the center of the rest area or interchange.
exitID	string	At interchanges, the designated interchange number is provided. For rest areas and weigh stations that do

		not have an exit identification the value will be set to null.
directionOfTravel	string	Text indicating the direction(s) of travel that can access the site. For sites that can be accessed by either direction of travel, a bidirectional identifier such as "NS" or "EW" can be used.
name	string	Name of facility as text (e.g., Rest Area or Flying J Truck Stop).
location	array	This array contains the seven following data elements about the site's physical location:
latitude	number	The latitude in a float format.
longitude	number	The longitude in a float format.
streetAdr	string	Text based address number and street name.
city	string	Name of city in which the parking area is located. If not in a city, the county name can be used (e.g., Johnson County).
state	string	Abbreviation for state in which the parking area is located.
zip	string	ZIP code of the location
timeZone	string	Time zone
ownership	string	Text used to indicate whether a parking site is privately owned or publicly owned. Accepted values: **"PR" / "PU"**
capacity	number	Total number of parking spots within the site.
amenities	Array of strings	Optional. List of text based amenities descriptions. Data structure would allow a varying number of amenities to be listed.
images	Array of strings	Optional. Provides a link to an image file on a server that shows the lot status visually. This is only used if images are being captured and shared from a surveillance camera, otherwise it will be null.

logos	Array of strings	Optional. Provides a link to an image file on a server that shows the private truck stop logo or TPIMS logo.

Static Public Feed - example

JSON format

[{"siteId":"WI00094IS0012400ERSTARE53","timeStamp":"2016-08-15T20:35:15Z",
"relevantHighway":"I94","referencePost":"123","exitID":"24","directionOfTravel":"0E","name":"House of the happy trucker","location":{"latitude":43.0000, "longitude":-89.0000, "streetAdr":"34 State
Street","city":"Madison","state":"WI","ZIP":"53703"},"ownership":"PU","capacity":25,"amenities":
["Shop", "Showers", "ATMs"],"images": [
"http://.../image1.jpg","http://.../image2.jpg","http://.../image3.jpg"],"logos": [
"http://.../logo1.jpg",http://.../image2.jpg]}]

Static Feed - live URL

https://transportal.cee.wisc.edu/TPIMS/static