



TO	Seattle Department of Transportation (SDOT)
FROM	CurblQ, a product of Arcadis
DATE	September 6, 2024
SUBJECT	GIS Open Data Feedback

This document includes recommendations for how to improve the GIS open data. This data, provided by SDOT, serves as the base data for the curb inventory created by CurblQ. The feedback provided in this document would reduce the number of customized steps required and would improve CurblQ's Open Data Automation processes for SDOT's GIS data.

Corresponding Street Signs with Curb Segments

1. Ensure that all street signs have corresponding curb segments, and vice versa. The exception would be curb segments that do not require schedule information (e.g., curb ramp, driveway) as these categories do not have signs, as well as any signs that do not apply to a specific curb segment. The ideal situation would include the following:
 - All curb segments that require schedule information have a street sign nearby with the schedule information (if there are not any signs, schedule information would be all day every day).
 - All street signs that apply to a specific curb segment have a corresponding curb segment, and they would both be in corresponding categories. Signs applying to multiple curb segments/larger areas would be dealt with accordingly.
 - Each curb space category would correspond with one or more street sign categories.

Note: When many of the curb spaces in a category match with many of the street signs of a certain category, the two categories are considered to be "corresponding categories" which is used in the process of matching curb spaces to street signs. A perfect example is the 'Bus Layover Zone' curb space category (in blue below) and the 'Bus Layover Signs' street sign category (in red below). These categories correspond perfectly which make it easier to match these curb spaces to their street signs.

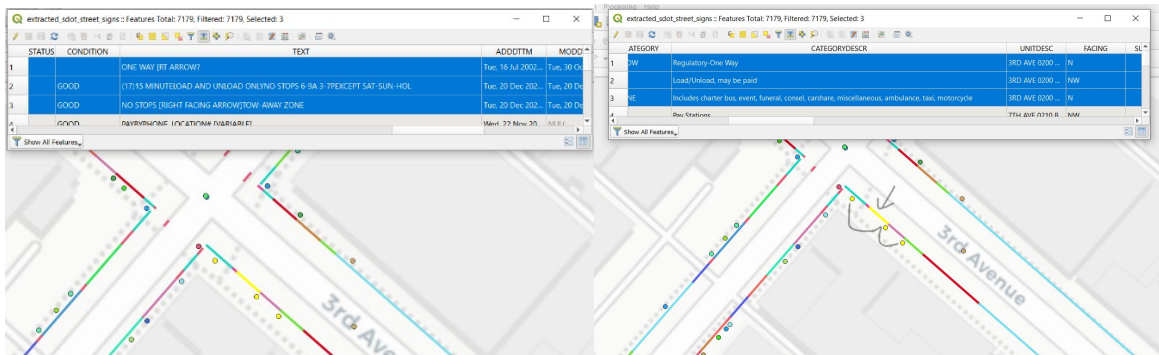


Example 1: The 'Peak Parking Restrictions, TOW' signs do not match with any curb space categories. We drew 'No Stopping' and 'No Parking' segments for these signs. Ideally, these

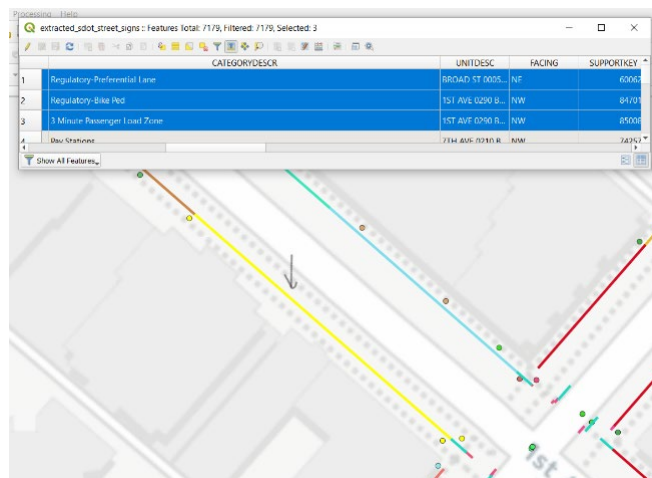


segments would be there already in the 'No Stopping' and 'No Parking' curb space categories, and both of these categories would both correspond to 'Peak Parking Restrictions, TOW' signs. Alternatively, we should have rules for how these are applied, e.g. it applies to the whole street.

Example 2: Some curb spaces do not match to its street sign because it is not in its usual 'CATEGORYDESCR' name. The following image shows a 'TOW AWAY ZONE' curb space (highlighted in yellow). By looking at the text in the signs nearby (also highlighted in yellow) and the pop-up window showing the highlighted signs' info, the third sign seems to be the correct match. This sign's 'CATEGORYDESCR' is "Includes charter bus, event, which is unexpected. Usually tow away zones match to 'No stopping, standing or parking' or 'No Parking, but "standing" allowed' signs. Due to it being in a sign category that was not expected, the algorithm was unable to match the curb space to its correct sign. It should be verified that the category names are correct and consistent which allows us to match more curb spaces to signs.



Example 3: Some curb spaces do not have any signs nearby that match. For those we assume it is a 24/7 schedule. The following image shows a 'No Parking' curb space and the nearby signs (highlighted). None of the nearby signs have a category name or text that corresponds to the curb space.





- **Actions:**
 - CurbIQ to provide a list of all the curb segments that don't have a matching sign (204/3348 curb segments are unmatched. I.e., 94% match rate, 6% unmatched) – see associated Excel file
 - o SDOT to review and see how we should address these.
 - SDOT to outline/confirm any assumptions we can make for signs and/or policies that aren't directly related with segments. In particular, 'Peak Parking Restrictions, TOW' signs, can they apply to the entire street? Additional policies for rules such as permits or street sweeping can also be added to the inventory if information is provided on how they should be applied.
- 2. The 'STARTDAY', 'ENDDAY', 'STARTTIME', 'ENDTIME' fields do not have accurate data when compared to the dates and times mentioned in the 'TEXT' field. In addition, many segments that have time limit information stated in their 'TEXT' field have their 'TIME_LIMIT' field equal to null. It would increase efficiency if these fields were filled in and accurate.
- **Actions:** we will continue our process as is, but it would be good to have these matching in future. One thing that could be easily fixed in the original data are the TIME_LIMIT fields.

Separating Regulations

1. It would be ideal if 'TEXT' fields that have multiple regulations had an identifier between each regulation. This identifier could be a symbol that would not appear in the string otherwise, such as a "!", or "&&".

Example:

(34)NO PARKING SYMBOL, 2AM-6AM, 30 MINUTE LOAD AND UNLOAD ONLY 6AM-10AM, EVERYDAY, TAZ SYMBOLS, 1 HOUR PARKING SYMBOL, 10AM-4PM, 30 MINUTE LOAD AND UNLOAD ONLY 4PM-6PM, EVERYDAY, TAZ SYMBOLS

Regulations separated by "!": (34)NO PARKING SYMBOL, 2AM-6AM, ! 30 MINUTE LOAD AND UNLOAD ONLY 6AM-10AM, EVERYDAY, TAZ SYMBOLS, ! 1 HOUR PARKING SYMBOL, 10AM-4PM, ! 30 MINUTE LOAD AND UNLOAD ONLY 4PM-6PM, EVERYDAY, TAZ SYMBOLS

- **Actions:** We will continue our process as is (using dictionary terms from the text fields) but this could streamline updating of data moving forward. We could also provide a list of where this needs to be done so that it can be addressed in the data
- 2. Adding on to 3., the 'TEXT' field has multiple regulations, it would be ideal if the category of each regulation is included in an additional secondary category field.

Example: (8) PAY @ PS 8A-4P MON-SAT 30 M LOAD AND UNLOAD ONLY 4P-4A EVERYDAY

Improved text field with identifier between regulations: "(8) PAY @ PS 8A-4P MON-SAT ! 30 M LOAD AND UNLOAD ONLY 4P-4A EVERYDAY"

Additional secondary category field with multiple categories: "PAY STATION, LOAD/UNLOAD"



This makes our process more efficient because our algorithm would be able to split up the regulations before parsing them to retrieve their schedules, but it had to be manually done previously as the algorithm has some issues knowing where one regulation ended and the other one started. It would also be beneficial to see all the regulation categories in an extra category field to automate the generation of duplicate segments for the additional regulations.

- **Actions:** We will continue our process as is where we use dictionaries to map categories but this could streamline updating of data moving forward.

- 3. When we have an identifier to split up the two regulations, allowing the parsing of the text in each regulation to be automated, the algorithm would not be able to generate the schedule if it says, "ALL OTHER POSTED DAYS AND TIMES".

Example: "(6)3 M PLZ 7A-6P MON THRU FRI, PAY TO PARK ALL OTHER POSTED DAYS AND TIMES".

It would be ideal if it specified these days and times like it does in the first regulation.

- **Actions:** We will continue our process as is where we address these on an as needed basis. This is something to think about moving forward on how SDOT would like these formatted in CDS.