

Improving San José 311 Efficiency: Reducing Unlabeled Requests and Proactively Identifying Resident Needs

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Introduction

San José implemented its Smart City Vision to advance safety, sustainability, economic opportunity, and overall quality of life for the community. To help City residents more easily access City services, San José 311 (SJ311)¹, a platform for non-emergency City services, was launched in 2017.

San José residents can access 311 by calling the contact center or using the SJ311 website to log a request in 18 services, including finding bills or looking up City services. If a request does not fit into a predefined category, residents can report issues in the “Other Issues” category. Use of SJ311 by City residents nearly doubled from 2018 to 2023.

Challenge

“Other Issues” is a catch-all service type so residents can log issues that do not in existing categories. These requests require manual categorization, which is an overhead on an already burdened contact center staff.

In 2020, the 311 offered 6 service types: Abandoned Vehicles, Graffiti, Illegal Dumping, Streetlight Outage, Pothole, and Other Issues. The “Other Issues” category was the largest category with over 175,109 (32%.6) requests of 537,636 requests from 2018-2020.

Annually, over 50,000 “Other” requests are manually routed by 15 staff. If the number classified as “Other” is reduced, requests can be routed faster while freeing staff time for essential services.

This led the City to explore natural language processing to categorize “Other Issues” service request using the free form text description to:

1. Identify new service types for the SJ311 platform
2. Redesign existing service types to meet resident needs
3. Streamline internal processes to better handle “Other Issues” requests

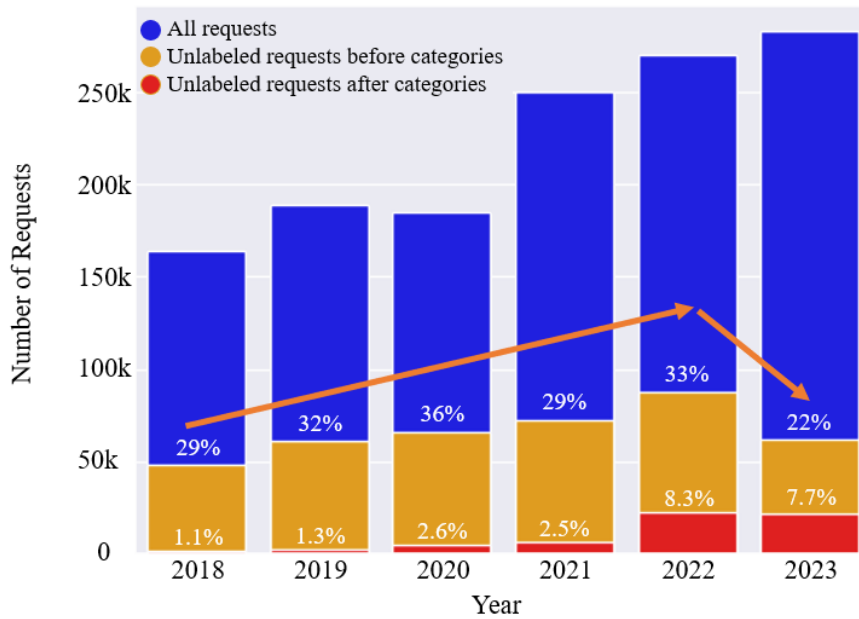
Analysis

In 2021, the City worked with a data science team at Dell Technologies to categorize “Other Issues” requests. The Dell team used topic modeling to unearth new themes that could be new service categories. In 2023, City’s in-house team took on the work to grow, build and sustain the work done by the Dell team. Some of the new themes became their own category and were added to the SJ311. Other themes remained as subcategories within the “Other Issues” category.

San José built a language model to correctly categorize 132,391 requests from 2022-2023 “Other Issues” requests. The team used 183,097 requests from the “Other Issues” category from 2018-2021.

¹ <https://311.sanjoseca.gov/>

Unlabeled requests reduced from 30% to 6%, 2018-2023



Improvements made to San José 311

Based on the topics identified in the analyses, the City also modified the contact center’s backend subcategories. These are used for tracking and prioritizing new service request types on the platform. When a subcategory becomes large enough, the subcategory is elevated into its own service request category.

New Categories

New categories added were:

- | | |
|--------------------------|--|
| 1. Container Issues | 8. Community WiFi |
| 2. Start New Services | 9. Water |
| 3. Garbage and Recycling | 10. Encampment Concerns |
| 4. Junk Pickup | 11. Street Sweeping Service |
| 5. Missed Collection | 12. Vehicle Concerns (previously Abandoned Vehicles) |
| 6. Illegal Fireworks | |
| 7. Eviction Prevention | |

After recategorizing requests using BERTopic, we see that Other Issues has decreased from 32.5% to 21.9% for all requests from 2019 to 2023.

Subcategory Labels

Subcategories added to Other Issues were:

- | | |
|---------------------|-----------------------------------|
| 1. Building Permit | 4. Code Inquiry |
| 2. Business License | 5. E-Bill Express Technical Issue |
| 3. City Hall Info | 6. External |

7. Homeless Concerns
8. Hauler Complaint
9. Inquiry
10. Non-Emergency Police
11. Other

12. Parking Concerns
13. Sewer/Sanitation/Wastewater
14. Streets Dispatch
15. Utility And Billing

Conclusion

By analyzing the Other Issues category, common themes have been identified and used to create both additional service request categories and subcategories. This has resulted in a decrease in reporting times for the contact center team and potential categories to add to the SJ311 platform.

From 2021 to 2024, the SJ311 platform added 6 service categories and 14 subcategory labels.

The project successfully reduced the number of 2018-2023 requests with no category (also known as unlabeled requests and originally placed in the “Other Issues” category) from 397,223 requests (30%) to 74,026 requests (6%) of all requests from 2018-2023.

This is intended to be an iterative improvement process for the City to improve its efficiency and respond times to SJ311. Next steps include taking the lessons learned from adding subcategories to the next customer relationship management system, such as ensuring that the uncategorized options within the “Other Issues” category is small by creating more subcategories early in the process.