New York City Next Generation 311 (NG311) Program Request for Information

ISSUED BY THE NEW YORK CITY DEPARTMENT OF INFORMATION TECHNOLOGY AND TELECOMMUNICATIONS
MARCH 7, 2018
RESPONSES DUE: APRIL 4, 2018, 1:00PM (EST)
LOCATION: RESPONSES TO THIS RFI SHALL BE SUBMITTED BY MAIL TO:

NEW YORK CITY DEPARTMENT OF INFORMATION TECHNOLOGY & TELECOMMUNICATIONS
ATTN: JOHN GIOIA, CONTRACT MANAGER
15 METROTECH CENTER, 18TH FLOOR
BROOKLYN, NY 11201

Note: All questions and requests for additional information concerning this RFI should be submitted via e-mail no later than March 21, 2018 at 1:00PM (EST) directed to John Gioia, the authorized Agency Contact Person, at:
Email Address: Jgioia@doitt.nyc.gov

TABLE OF CONTENTS

1. Executive Summary....3
2. Agency Overview DoITT....3
311....4
3. Project Overview....5
Objectives....5
Benefits....5
Scope....6
4. RFI Requirement Process....7
Participation in this RFI....7
RFI Timeline....7
Primary Contact for all Questions....7
Liabilities of Agency....7
Confidential Information Provided by Responders....7
Provisioning and Administrative Systems....7
User-Level Functionality Required in the NG311 Call Handling System....8
5. High Level Business Requirements....8
OVERVIEW OF FUNCTIONAL REQUIREMENTS....8
User Interface:....9
Data Integration:....9
OVERVIEW OF INFORMATIVE SECURITY REQUIREMENTS AND PRIVACY PROTECTION....9
Security Architecture....9
OVERVIEW OF AVAILABILITY REQUIREMENTS....10
OVERVIEW OF FINANCIAL REQUIREMENTS....11
6. OVERVIEW OF TECHNICAL REQUIREMENTS....11
Call Routing/Call Flow/ Agent Handling....11
Natural Language IVR....11
7. Multi-Tenant IVR....14
Housing Preservation and Development (HPD)....14

Application Architecture 14
OATH (Office of Administrative Trials and Hearings) 15
FDNY 16
8. List of Figures 19
Figure 1: 311 Current Call Flow 19
Figure 2: Alternate Side Parking (ASP) 20
Figure 3: 212-NEW-YORK Call Flow 21
Figure 4: Sample DTMF IVR Scenario 22
Figure 5: 311 Calls Queued to Agents 23
Figure 6: Optional Heavy Call Volume 24
Figure 7: Calls Queued to Agents Measured as Longest Idle Agents 25
Figure 8: Survey Handling 26
Figure 9: Wait Time Announcements 27
Figure 10: Parking Violations 28
Figure 11: CO Arrangement for Incoming Calls 29
Figure 12: Simplified CRS Plan 30
Figure 13: AACC Client Interfaces 31
Figure 14: Escalations by Agents 32
Figure 15: Ad Hoc Multiple Agency Temporary Disaster 33
Figure 16: Alarm Management 34
Figure 17: TDD Call Handling 35
9. Itemized Technical Requirements 35
10. Required Response Outline 36
11. Response Format 38
12. Appendix A- Glossary of Technical Diagrams of 311 Applications 42
13. Appendix B – Glossary of Specific Terms and Acronyms 43

1. Executive Summary

To respond more effectively to daily and emergency operational challenges at 311, the City of New York has initiated an expansion of its current capabilities by identifying potential paths to transition its Multi-Tenant IVR platform together with 311 call center's core telephony system and software applications. The goal is for these new systems to appropriately interact with existing and planned operational and corporate information systems. Specifically, the City is studying potential programs to permit migration to IP-based switching infrastructure and call handling systems that would allow the City of New York to incorporate next-generation applications.

Assessments performed by the City have led to the conclusion that the preferred option is to migrate the City's 311 contact center to a new, IP-based, fully redundant, next-generation 311 system. This RFI is an early step in our planning process and will provide the City with a better understanding, not only of the benefits, but also of the challenges, risks, and issues associated with migrating to a NG311 platform.

This RFI is structured to focus on the unique challenges and opportunities facing the City of New York. Responders are encouraged to focus on the questions in the sections below and provide clear, succinct responses that demonstrate their knowledge and experience in implementing NG311 systems in similar customer environments. Diagrams are welcomed and encouraged.

Responders that demonstrate understanding of the City's challenges and opportunities, including providing assistance for people with disabilities and finding realistic solutions to address their needs, may be invited to meet with staff of the New York City Department of Information Technology and Telecommunications (DoITT) and 311 to clarify their responses in person.

DoITT and 311 appreciate the effort responders invest in this early stage of the process.

2. Agency Overview DoITT

In addition to traditional information technology and telecommunications services, DoITT's role has expanded to include support services for the City's 311 system. For example, DoITT is currently managing the completion of a second language option to the Nuance application. DoITT is also managing the installation and integration of new digital signage and content management applications for the 311 call center which will allow the 311 call center to display 311's real-time call center statistics. The NG311 Program will be managed and implemented by an integrated City Program Management Office (PMO) consisting of DoITT and 311. The City seeks to purchase products and services from selected vendors. DoITT intends to play an active role in the management and maintenance of the operational system. While this is only a Request for Information, responders are encouraged to provide information about their products and services at a level that anticipates the sophistication of DoITT and the agencies described in the following paragraphs.

311

NYC 311's mission is to provide the public with quick, easy access to all New York City government services and information while offering the best customer service. Calls to 311 are answered 24 hours a day, 7 days per week, and 365 days a year. The 311 call center receives on average 50,000 calls a day, including emergency and non-emergency calls. Emergency calls are conferenced with the City's 911 call center, with a no hold conference feature, that enables the customer to talk to both parties so the call will be treated as a life threatening emergency without putting the customer on hold with music. The same no hold conference feature is used by agents when accessing a language line required under Local Law 30 and Executive Order 120. The language line allows agents to conference in an interpreter who can translate and assist the caller with their inquiry.

NYC 311 is programmed with 883 licensed agents out of a maximum of 1056 licenses currently, and there are approximately 300 agents actively taking calls at any given time. Each agent answers about 200 calls a day and all the calls are forced to the agent's headset without giving the agent an option to pick up the call. The Quality Assurance Department and the Call Center Supervisors actively monitor the calls for quality assurance. Emergency calls are handled with extra caution. During emergencies (for example, Hurricane Sandy, snow storms, or blackouts), 311 management takes extra steps to answer customer calls. 311 is also responsible for answering calls for critical agencies like the Department of Finance (DOF), Department of Transportation (DOT), Department of Buildings (DOB), New York Police Department (NYPD) (for noise complaints), Department of Environmental Protection (DEP), Department of Sanitation (DSNY), and Housing Preservation and Development (HPD), all of whom handle the calls with Tier 2 (T2) agents. The workforce team tracks how closely staff adhere to their schedules and captures live interactions to see what's causing adherence problems. Additionally, the team uses predefined or customized KPIs displayed in role-appropriate scorecards to track and analyze performance.

DoITT and 311 are the major stakeholders in this project and set 311 operational standards that best meet the needs of the citizens and visitors to New York City. The volume of 311 calls, the number of available agents, and the needs of other supported agencies drive 311 operational standards that are, at times, necessarily different than those adopted in many other jurisdictions. A primary goal of this program is to deliver a technology infrastructure that supports the current operational requirements of DoITT and 311. If new features are available as a result of implementing the new technology that allow 311 and/or DoITT to change their operational policies to improve service, then, at the option of the agencies, these new features will be evaluated and tested under controlled environments prior to being considered for activation. In addition to owning the operational procedures, DoITT and 311 also bring a substantial amount of technological sophistication to the program. These two agencies will be involved in understanding and making decisions related to all technology being implemented.

3. Project Overview

Objectives

The program is focused on migrating three existing (3) CS1000 PBX systems with ninety-six (96) T1s, two (2) Call Pilot voice messaging and announcement platforms, two (2) Avaya Aura Contact Center applications, two (2) CTI Servers, a Multi-Tenant DTMF IVR system with multiple servers and applications, and the existing Natural Language applications and databases. Besides telephony applications the migration also includes NICE audio and screen recording with agent quality assurance databases, agent's workforce management platforms with 8 years' worth of historical databases, and two (2) Symon wall board applications (a real-time monitoring platform) for the call center. The migration must ensure that the 311 call center will not lose any historical statistics from the enterprise BI system which has stored data for 311 since the beginning. The new system must be fully IP-based and implemented using architecture and functional components that are not only fully redundant in an active-active solution, but also provide for seamless failover from one site to another. Additionally, every effort must be made to minimize impact to the call center when migrating from the current platform to the new environment.

A concerted effort will be made to interconnect the Originating Service Providers (OSPs) operating in New York with the new system via SIP, thus eliminating, or at least significantly limiting, the need for Legacy Network Gateways (LNGs). This will also eliminate or reduce any future migration efforts that could affect operations.

Benefits

- All applications will be geographically redundant.
- A Staging environment will include all DoITT Contact Center Applications that are in the production environment.
- A fully redundant virtual environment will reduce downtime close to 0%
- Remote workers will have access to all contact center features and applications.
- The business intelligence system will be easy, accurate, timely, and reliable (as close to real time as possible), and will transform the data to allow for more natural relationships, simplified search parameters and information to be displayed in a user-friendly fashion. The source databases are very complex and need to be transformed into consumable views for analysis by non-technical people. This transformation process must be accurate and reliable since business decisions will be made based on it.
- The platform deployed will have all inherent NG311 capabilities and allow for turning on features when requested by 311 and/or DoITT. Specifically, the City would like the option to implement a variety of capabilities supported by NG311 including but not limited to the following:
    - **Omni-channel support.** Capability to support different options for customer engagement including but not limited to e-mail, voice, text, chat, SMS, fax, and social

media.

- **Participation by other agencies in NG311 system.** The City would like the option to include select agencies in the NG311 system without affecting core NG311 capabilities. These additional agencies could include other city, state, and federal agencies.
- **Interconnection with 911/Language Line**. The City must be capable of transferring 911 calls received through 311 without placing the caller on hold as well as external language lines.
- **Interconnection with Microsoft Dynamics 365 CRM and Portals (SaaS-GCC Cloud).** The NG311 system must interoperate with the Microsoft USD (Unified Service Desk) and Microsoft Dynamics 365 CRM and Portals (SaaS – GCC Cloud) systems in the process of being installed. Agents must be able to answer calls, transfer calls, end calls, and set their agent status using the USD toolbar.

Scope

- Move off the current Avaya CS1000s, ACD, Call Recording, Call Pilot, Work Force Management, Symon, Nuance platforms no later than January 2020.
- Provide 311 with an IP-based platform supporting omni-channel capabilities.
- Provide seamless integration with MS Dynamics USD.
- Ensure no 311 calls go unanswered or delayed during the migration.
- Minimize the disruption to 311 call taking operations during the migration.
- Build an IP-based foundation that supports the City's goals and operational policies.
- Allow new features to be turned on if and when requested.
- Provide NG311 availability, network reliability, resiliency, and redundancy levels that are equal to or greater than those provided by the current 311 system or as provided by law.
- Migration of call flow scripts and historical reports to the new Automatic Call Distribution system that handles call processing for "Pre-NLU" self-service applications.
- Full migration of the MPS NLU IVR application to a new IVR platform. The system needs to transition to a fully supported platform due to upcoming end-of-support issues.
- Migrate all the call routing for 311 and various agencies to the new PBX system.
- Provide training for all levels of use prior to the migration.
- Provide a clear migration path to the new platform with no/minimal disruption to the call center and City.
- Vendor may not rip and replace all the call center equipment and applications overnight.
- Both the legacy and the new system must run in parallel.
- All the data must be migrated over to the new platform on post-migration.
- Vendor responses should include a high-level system, functional, and security architecture diagram.
- Build a staging/development environment which will mirror the production environment.
- Maintain continuity of Contact Center reporting.

- Migrate Spanish support to the new platform.

4. RFI Requirement Process

Participation in this RFI

This RFI is issued for information and planning purposes only and does not constitute a solicitation for any services or products. A response to this RFI is not an offer of any kind and cannot be accepted in any form to be a binding contract. No party is bound by the information provided in this RFI or by any response to this RFI. The City of New York shall not be liable for any costs incurred by responders in developing or submitting a response to this RFI.

RFI Timeline

Event	Target Due Date
RFI Release	3/7/2018
Questions from responders	3/21/2018
Responses due	4/4/2018
Oral Presentations from selected vendors	4/11/2018-5/9/2018

Primary Contact for all Questions

All questions should be directed to: John Gioia

Liabilities of Agency

This RFI is only a request for information about potential products / services. and no contractual obligation on behalf of The New York City Department of Information Technology and Telecommunication whatsoever shall arise from the RFI process. This RFI does not commit DoITT to pay any cost incurred in the preparation or submission of any response to the RFI.

Confidential Information Provided by Responders

Responders should identify those portions of their responses, if any, that they deem to be confidential, proprietary information, or trade secrets, and provide any justification of why such materials, upon request, should not be disclosed by the City. Such information must be easily separable from the non-confidential sections of the response. All information not so identified may be disclosed by the City.

Provisioning and Administrative Systems

Provisioning and administrative systems are a critical aspect of a NG311 system selected for deployment. If an RFP is developed, detailed questions will be asked concerning the interfaces listed below. This RFI focuses on the high-level architecture of the envisioned NG311 System; as such, information pertaining to the provisioning systems is not included.

Important provisioning and administrative systems:

- Ad hoc script changes to both the IVR, Outbound Campaign, and Natural Language
- Ad hoc changes to display boards
- Standard and ad hoc reporting
- Provisioning system users with role-based permissions (all provisioning systems)

User-Level Functionality Required in the NG311 Call Handling System

Call handling procedures in the City have evolved over time to address very high 311 call volumes, changes in technology, and new or changing data gathering requirements. While the current call handling procedures are efficient and effective, 311 and DoITT both see the migration to NG311 as an opportunity to revisit and update operational procedures. This RFI process will provide visibility to the operations staff as to what NG311 offers. This awareness may be used during the development of future Requests for Proposals.

5. High Level Business Requirements

OVERVIEW OF FUNCTIONAL REQUIREMENTS

- Skill routing across multi channels – pushing calls, texts, chats, etc. to a "universal agent."
- Smoother transition throughout IVR path (no rings, beeps, etc.).
- Customer should be able to flip from one channel to another easily and be able to quickly access an agent, with consistent customer service experience across each of the touch points (i.e. any information collected within one channel should be available across all channels).
- Customer Identification* – voice or verbal identification of a registered individual, which would subsequently allow
    - Account Management (access to Service Request [SR] history, updating profile information)
    - Customer Preferences (language, bypassing IVR messaging such as ASP)
    - Post-contact summary (text or email message of FAQ information that was accessed)
- Tracking of IVR/NLU path (FAQs, transfers) from IVR as well as post-CCR contact.
- Surveying capabilities (Figure 8)
- Compatibility with Nuance Survey tool or incorporation of a survey tool which allows us to invite, collect data, and dial out to facilitate a survey or invite and facilitate the survey within the system
- Virtual Queuing
    - Customer has the option of receiving a call back instead of holding on the line to connect

with an agent
    - Ability to identify specific queues (i.e. Property Tax) versus an all-or-nothing approach
- Fully functional Workforce Management Optimization with the ability to perform agent scheduling, agent real-time activity tracking, shift bidding, 100% call and screen recording with Quality Assurance and historical analytics. The features and functions of WFO & QM must be combined into one application.
- Fully integrated real-time and Historical Business Intelligence with multiple data points that are easy, accurate, timely and reliable. Every call that enters and exits 311 must be reported with its activity (for example, calls that came in from the IVR, the type or treatment they receive, and for how long etc.) and the data displayed in a user-friendly fashion on a big display and workstation. The data dictionary also must be available for the business to be able to modify/calculate data according to business need.
- Seamless conference with 911 call center and/or language line without placing the caller on hold or having music play while the conference takes place.

User Interface:

- The user interface must be intuitive and require little end user training.
- It should support statistical reports, dashboards, and graphical analysis tools.
- It should facilitate 'drilling down' into the data.
- It should provide for ad-hoc querying of data that can then be presented graphically and exported if needed.
- The user interface should be customizable by system administrators and by the end user.

Data Integration:

- Source data is in SQL Server and InterSystems Cache, as well as text files, spreadsheets, and XML documents.
- APIs should be available to enhance and extend the system to integrate with 3rd party databases.
- It is expected that there will be a transformed data warehouse. Tools should be available to facilitate the transformation process.

OVERVIEW OF INFORMATIVE SECURITY REQUIREMENTS AND PRIVACY PROTECTION

Security Architecture

The NYC311 system must be available to both City users (311 users, and other City agencies) and to external users (Customers). The Customers will be able to access the application via multiple channels, including web, mobile and text. Therefore, it is critical to secure points of entry for the system infrastructure as well as the types of outbound communication allowed while ensuring network integrity.

In addition to aligning with the DoITT Security Architecture Standard, the 311 systems must enable the following:

- Role-based Identity and Access Management (IAM) aligned with the DoITT Identity Management Strategy for external applicants as well as City workers.
- All interfaces between 311 technical components must use secured methods of communication that meet Multi-Tenant policies and industry best practices if private or confidential data is transmitted.
- Data must be classified based on DoITT's Data Classification Policy; data needs to be classified by the owners of the data.

The system development and test effort will incorporate the following security domains:

- Network Security
- Authentication and Authorization
- Platform Security
- Web Server Security
- Database Security
- Vulnerability Assessments

The System Integrator (SI)'s development and maintenance of the NYC311 system must follow a security-driven approach to protect the application and infrastructure from security threats, and conform to all DoITT IT Security policies and standards. While delivering the NYC 311 system, the SI must adhere to the following:

- Contractor is responsible for adhering to the guidelines, standards, IT Security policies, and best practices as published by DoITT at: http://www1.nyc.gov/site/doitt/business/technical-vendor-resources.page
- The SI shall surface issues, suggest options, and make recommendations to the City with regard to security, based upon the classification of application data as described in the City's Data Classification Policy.
- All staff and consulting resources provided by the SI are required to acknowledge receipt of the Citywide User Responsibilities Policy.
- The SI will be required to adhere to City policies, standards, and best practices for information security, application and systems network architecture, disaster recovery, and the secure storage and transmission of data.

OVERVIEW OF AVAILABILITY REQUIREMENTS

- This system will be used 24X7. High availability is required for all the applications.

OVERVIEW OF FINANCIAL REQUIREMENTS

Financial Statements

- Requires information on financial statements
- Requires information on R&D spend

6. OVERVIEW OF TECHNICAL REQUIREMENTS

Call Routing/Call Flow/ Agent Handling

The 311 systems currently used in the City are composed of several systems integrated to handle the various call flows and application functions. Call aggregation, call routing, call handling systems, and all voice networks employed in the 311 systems have all been procured through the 311 System Service Provider (SSP) responsible for the City. All Originating Service Providers (OPSs) with subscribers in the City send 311 calls initiated by their subscribers to a redundant pair of CO switches, located in the City (Figure 11). These switches then route calls to the primary 311 call center. Call takers at this facility are either full time city employees or CUNY students. These call takers gather the necessary information to determine the appropriate response and any further escalation that may be necessary. The information on the agent's screens as well as the audio calls are recorded. Approximately 20 million 311 calls per year are processed using these operational procedures.

In addition to calls initiated by dialing 311, the current 311 system supports calls initiated in other ways. For example, NYC publishes a 10-digit number, 212-NewYork, for calls into 311 from outside NYC (Figure 3). Another number that can access 311 services is 211. Figure 1 shows the current configuration. In addition to these numbers, 311 services can also be accessed by visiting http://www1.nyc.gov/311 or using the 311 App from the Google or Apple App Stores.

Natural Language IVR

The custom application solution to be provided includes an upfront Natural Language- enabled menu that will greet callers, play any pertinent broadcast messaging, and route callers based on their response to an open-ended question (Figure 1). Routing by that response will move calls to one of several automated IVR applications, to additional disclaimer/informational messaging, or to internal/external transfer destinations. Today The NLU resolves ~1.5 million calls annually and 311 is inextricably dependent on the current and planned set up of the NLU for continued operations.

Upfront Call Treatment in the IVR (Figure 1)

1. Messaging & Disclaimers
    - Emergency Broadcast Message Placeholder
    - Language Selection - English / Spanish

- 911 Disclaimer
- Informational Broadcast Message Placeholder

2. Active and available slots for static disclaimer/informational messages, which could be updated at any time. Each voice segment can be 2 minutes in length.
3. Functions for messaging and up-front call treatment will be set as configurable parameters (with turn on/turn off capability).

Full Self-Service Modules (including transfer functions)

The functions listed below will be designed and developed to allow callers to complete the entire transaction or function without the need for an agent; transfers to an agent based on business rules or caller request will be available throughout the applications.

1. NLU (Natural Language Understanding) Main Menu:
   - Disambiguation and context-sensitive keywords for help and fallback
     - Up to 30 disambiguations
   - Dynamically-rotating examples (to help the caller) where the number of rotations and their weighted value equals 100%.
   - Routing functionality with more than 50 destination options internally and about 75 externally
   - Transfers and Routing (Figure 10)
     - Transfer to self-service applications
     - Transfer to NYC311 Agent Skill (Figures 5 & 7)
     - Transfer to external agency or IVR
     - Up to 75 unique transfer locations (i.e. business rule transfers to external agencies)

2. Request Status of a Service Request
   - Assumes a Siebel lookup
   - Up to 823 statuses

3. Ability to Complete Self-Service Request form via the NLU

4. Parking Ticket Lookup (Figure 10)
   - collect license plate number
   - Backend lookup (assuming VXML integration)
   - Provide and/or confirm information
   - Offer payment option
   - Transfer for payment

5. Towed Vehicle Lookup
   - Collect license plate number or ticket number

- Backend lookup
- Provide and/or confirm information

6. Calendar Lookup
    - Callers will be able to check on school closings, mail or trash pickup, and alerts

7. Ad Hoc Broadcast Message Event Handling
    - Allow for a top-level broadcast message placeholder
    - Includes an interface/tool for creation and deployment of broadcast/alert messages (via a System Management Console).
    - Includes functionality in the NLU menu to dynamically accept response tokens that match ad-hoc content
    - The detailed requirements for the Ad Hoc Broadcast Message Event Handling will be determined during the requirements/discovery phase of the project. It is assumed that a custom tool and a custom interface to the NLU grammars will need to be developed. The work effort to complete this development has been included, with the expectation that the final design and development of this component will be refined as requirements are further defined/discovered.

<u>Partial Self-Service Automation Modules with Transfer and CTI Screen Pop</u>
The functions listed below will be designed and developed to collect or provide preliminary information to callers and to include that initial call data along with the voice call when a transfer to an agent is made. This functionality assumes that CTI Screen Pop is enabled at the agent desktop.

1. Service Request Status
    - Collect Service Request (SR) number
    - Backend lookup
    - Provide SR status
    - Transfer (skills-based routing)

2. File a Complaint (landlord or heat) **[Currently Not Done in the NLU]**
    - Collect contact information (caller's phone number)
    - Determine complaint category (broad)
    - Transfer (skills-based routing)

3. Bulk Item Disposal Information
    - Provide disclaimer / static information
    - Transfer for additional information (skills-based routing)

4. Refrigerator and A/C Unit Disposal (CFC Removal)
    - Provide disclaimer / static information

5. Transfer for additional information (skills-based routing)

CTI Screen Pop

The desktop application will serve as a link between calls on the Contact Center platform and the browser-based Siebel application (to be replaced by Microsoft USD). To use the desktop application, a call center agent will enter login credentials that will be validated against the contact center configuration. After logging in to the application, the agent will take calls as normal. When a call arrives at the agent's extension, the desktop application will simultaneously receive a list of call data from the Contact Center platform. It will then use this call data to execute a predefined action in the CRM webpage and populate the appropriate desktop fields.

7. Multi-Tenant IVR

The following agencies obtain IVR services from the DoITT IVR farm.

Housing Preservation and Development (HPD)

HPD is using IVR for their notification process.

The IVR solution provides HPD with the ability to create dynamic, DTMF based, self-service applications. This solution obtains detailed application logic through the execution of a Java method, implemented by the customer. This allows an external source to have control over the call flows. Interactions such as answering a call, prompting and obtaining caller input, initiating an outbound call, and call transfers are driven by parameters received through exchanges with this Java method.

The IVR application builds a generic call flow process and uses it to implement the complaint notification system. Its purpose is to contact tenants and owners concerning various complaints and obtain a status of each issue. This application has the flexibility to notify contacts with a variety of messages that need to be under the control of the HPD host system database.

Application Architecture

The current HPD IVR application uses a modular design. The modules are linked via the VXMLI process on the MPS for applications running on the MPS and the Application Server, and also linked via a PAF feature called ServiceInvoke and Service Return, for applications running on the Application Server. This allows the modules to be designed and coded as separate entities, and then linked together to form a fully functional application. The application consists of 5 modules: *NYHPDMain, NYHPDOutBound, NYHPDHost, NYHPDOwner, NYHPDTenant.*

The following is a short summary of how the modules are linked together and how they interact with each other.

NYHPDMain, residing on the MPS, will pass a request through the PAF Module. CallRouter, *NYHPDHost* is invoked which interacts with NYHPD's Oracle package that determines the next call in the queue and passes the associated information back to *NYHPDMain. NYHPDMain* then initiates the outdial request and detects line status *via* CPD. According to the detected line status (ringing, busy, no answer, voice, etc) the application *NYHPDMain* then invokes either *NYHPDHost or NYHPDOutBound.*

Both *NYHPDOwner and NYHPDTenant* will play a description of conditions as defined in the call data in NYHPDHost. For NYHPDTenant, the caller will be prompted for each condition to indicate if it still exists or if it has been corrected. *NYHPDOutBound* will update the NYHPD database *via NYHPDHost* after each call.

If CPD detects no answer or busy or any other condition, the NYHPD database will be updated via *NYHPDMain.*

OATH (Office of Administrative Trials and Hearings)

The Office of Administrative Trials and Hearings (OATH) has deployed IVR to allow the public a channel to inquire about their ECB-related debt to the City as well as pay those debts via credit card.

The Self-Service (IVR) Solution provides callers into the application with options to obtain information related to Notices of Violation (NOV) for 4 tribunals: Environmental Control Board; Taxi and Limousine; Health; and OATH. In addition, OATH Employees can check on facility status. Callers will first hear a greeting and then be asked whether they'd like to continue in English, Spanish, and eight other languages. After making their language choice, they are presented with a menu of which tribunal they are calling for.

After choosing a tribunal, the caller can get information on what to do if they received a notice of violation; the appeals process; hours, locations, and directions; specific information on the violation; make a payment; talk with a representative; etc. At the main menu, there is also an option for OATH employees to check on facility status, after entering their ID.

A second application will be developed to manage the Optional Broadcast Messages for the tribunal call flows. After entering a PIN, the caller will be able to record, review, activate and delete the different messages.

A web-based console application will be developed as part of this solution to maintain certain application variables. The main web page will have links to five pages:

1. Holidays
2. ECB
3. Health
4. TLT (Taxi and Limousine Tribunal)
5. OATH
6. CMR

FDNY

The Fire Department is using Avaya CM and AAEP (Avaya Aura Experience Portal) for its two applications.

1) Medical leave
    a. The caller will be connected with AAEP IVR. Caller may hear an informational message that FDNY can dynamically change as per its requirements, such as an instruction to call a different number (Medical Notification System) or any other emergency announcement.
    b. The caller will be prompted to indicate the applicable tour / shift from a provided list. This information will be utilized to retrieve caller profile information from the customer-provided data source.
    c. Based upon retrieved caller profile information, the caller may hear a message indication that they are already on medical leave, and the customer-provided data source will be updated.
    d. The caller will be prompted to indicate the applicable platoon from a provided list or to provide their group number.
    e. Appointment specifics will be retrieved from the customer-provided data source and the appropriate message will be played to the caller. The caller may be prompted to indicate that he or she wishes to schedule an appointment.
    f. Requests for appointments will result in up to three notifications being sent. The notifications will be in the form of faxes and emails sent to internal customer destinations.
    g. Callers will be prompted to indicate if they are leaving from or returning to their place of recuperation or are calling for another reason.
        i. Leaving calls: the caller will be prompted to make a selection from a list of destinations (i.e. doctor appointment, pharmacy visit). Callers selecting “other “will be transferred to a designated destination. An informational message may be played to callers based on their selection. The customer-provided data source will be updated with the status and the caller will hear a message indicating such.

ii. Returning calls: The Customer-provided data source will be updated with the status and the caller will hear a message indicating such.
iii. Another reason: The caller will be prompted to make a selection from a list of other topics. Each option will result in either a message being played or the call being transferred to a designated destination.

h. A web-based console application will be provided to allow customer maintenance of various application variable values. These values will include such elements as start and stop dates/times for outbound dialing, location of calling list, and messages to be played. The console application will be shared by the Confirm Location and Clinic Emergency outbound applications.
i. The Clinic Emergency outbound application will simply play a message; no called-party interaction will take place. The message played may be different for a live party reached and for a recorded message left.
j. The Confirm Location outbound application will attempt to confirm presence of a specific individual:
    i. Live party reached: the application will prompt the caller to enter an identifying item (i.e. ID number, social security number) or make a menu selection indicating reason for non-compliance.
    ii. Answering machine detected: a pre-recorded message will be left.
    iii. Call disposition (i.e. live party reached, message left, incomplete call) and any information captured from a reached party will be updated to a customer-provided data source).

2) 999x2000: a dynamic menu driven application
    a. FDNY converted their Centrex phone lines that came from Verizon to use Avaya PBX and Experience Portal to transfer calls that came to their 718-999-2000 number.
    b. This application will work as a call router and provide FDNY ability to change prompts at a specific level of the call. FDNY is using a web based console application that lets them change menus and route calls to different agents or different departments within FDNY. The console application will also be used to change their emergency broadcast message.

The system manufacturer will be responsible for submitting responses that address the goals and requirements described in this RFI. The manufacturer must propose using one of the following solutions:

- Submit a proposal for a cloud, on premise, hybrid, or other solution only. (*)

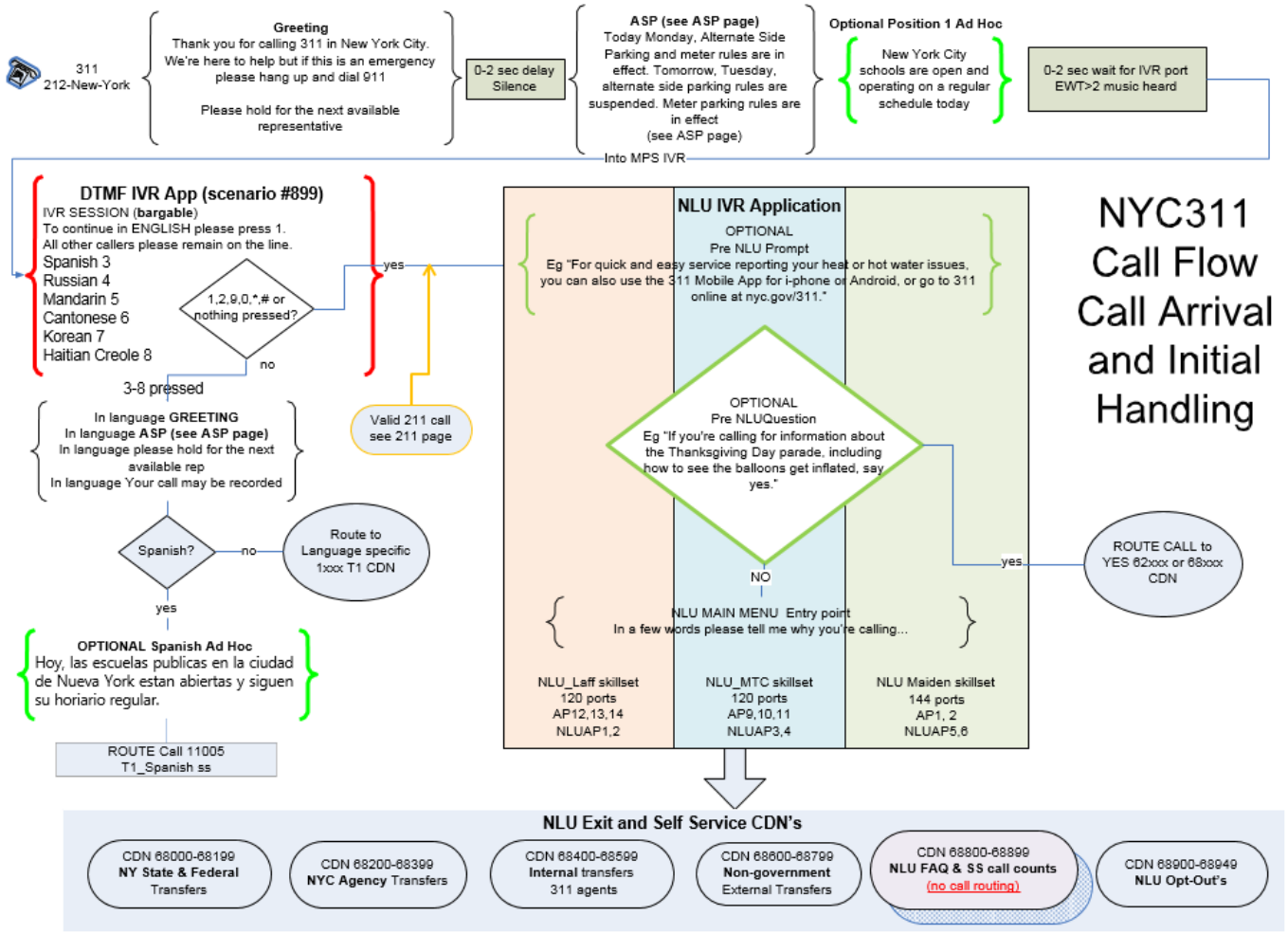
(*) “On premise” or “cloud” is dictated by the location of the on-line 311 systems. For example, if the on-line 311 systems are installed in the cloud, then the solution is “cloud-based”, regardless of whether the content management tool is installed on premise or in the cloud. Similarly, in an “on premise” solution, the online 311 systems are installed on premise.

Any cloud-based solutions will require the use of an encryption tool that will permit the City to hold the encryption keys.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

8. List of Figures

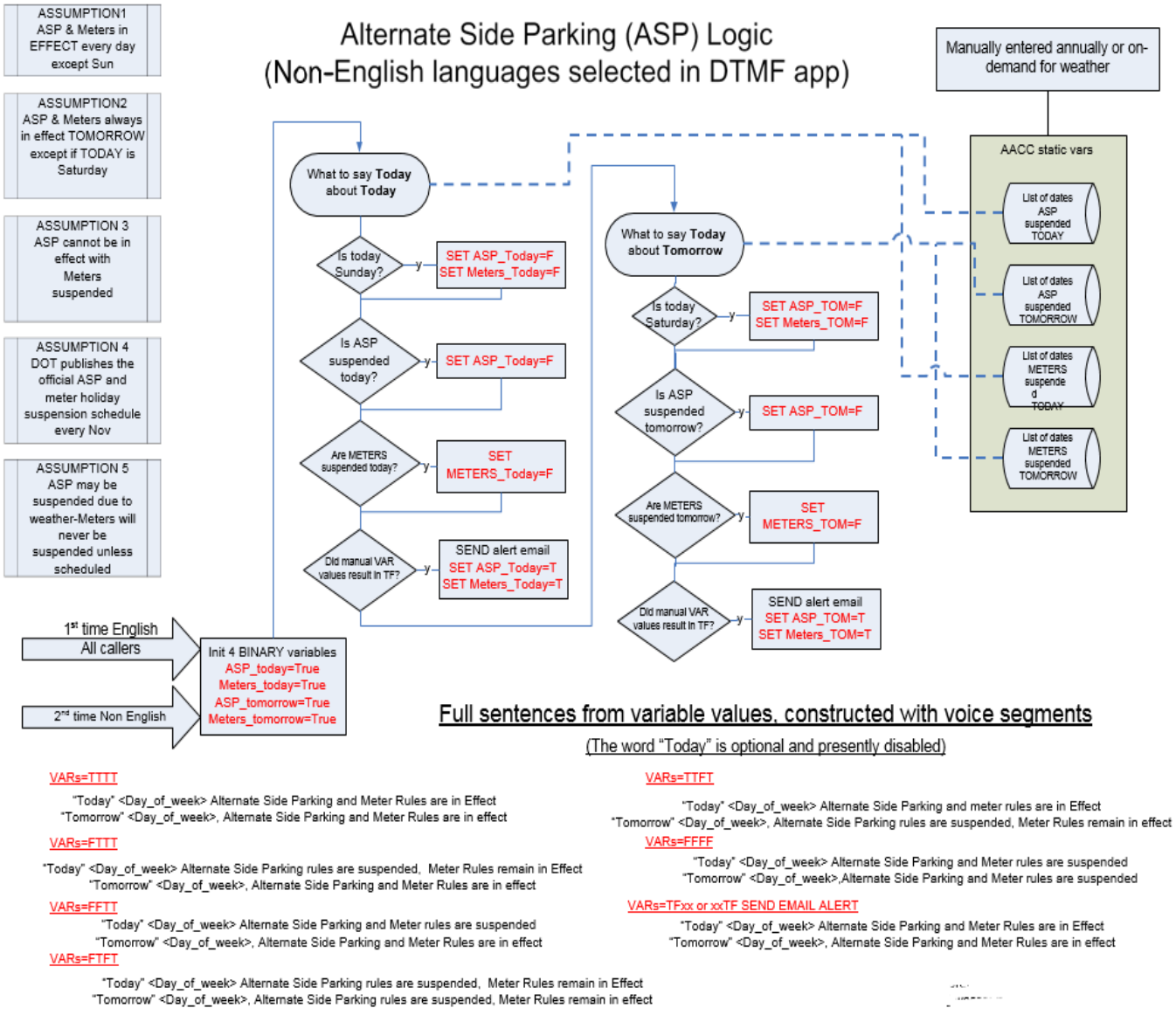
Figure 1: 311 Current Call Flow



Note: This is the current 311 call flow which shows how calls enter and exit 311 applications.

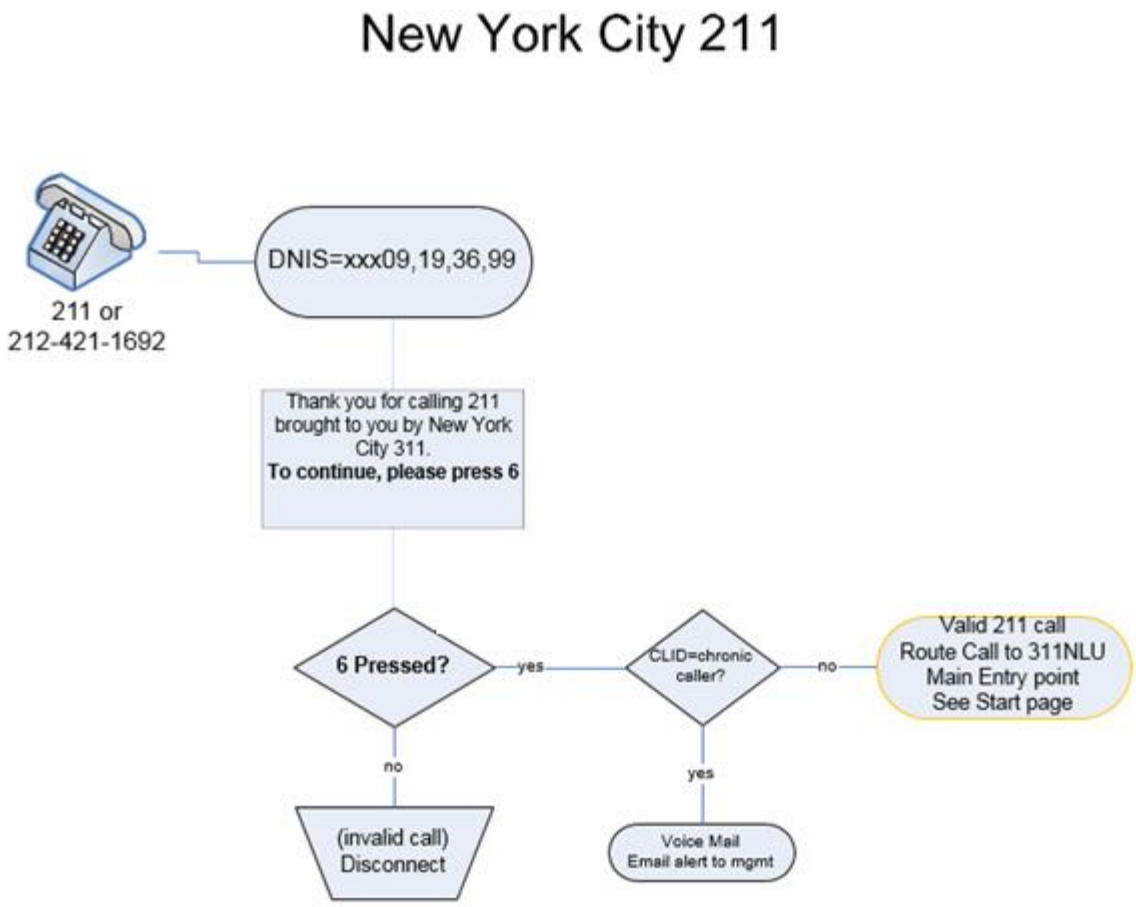
REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

Figure 2: Alternate Side Parking (ASP)



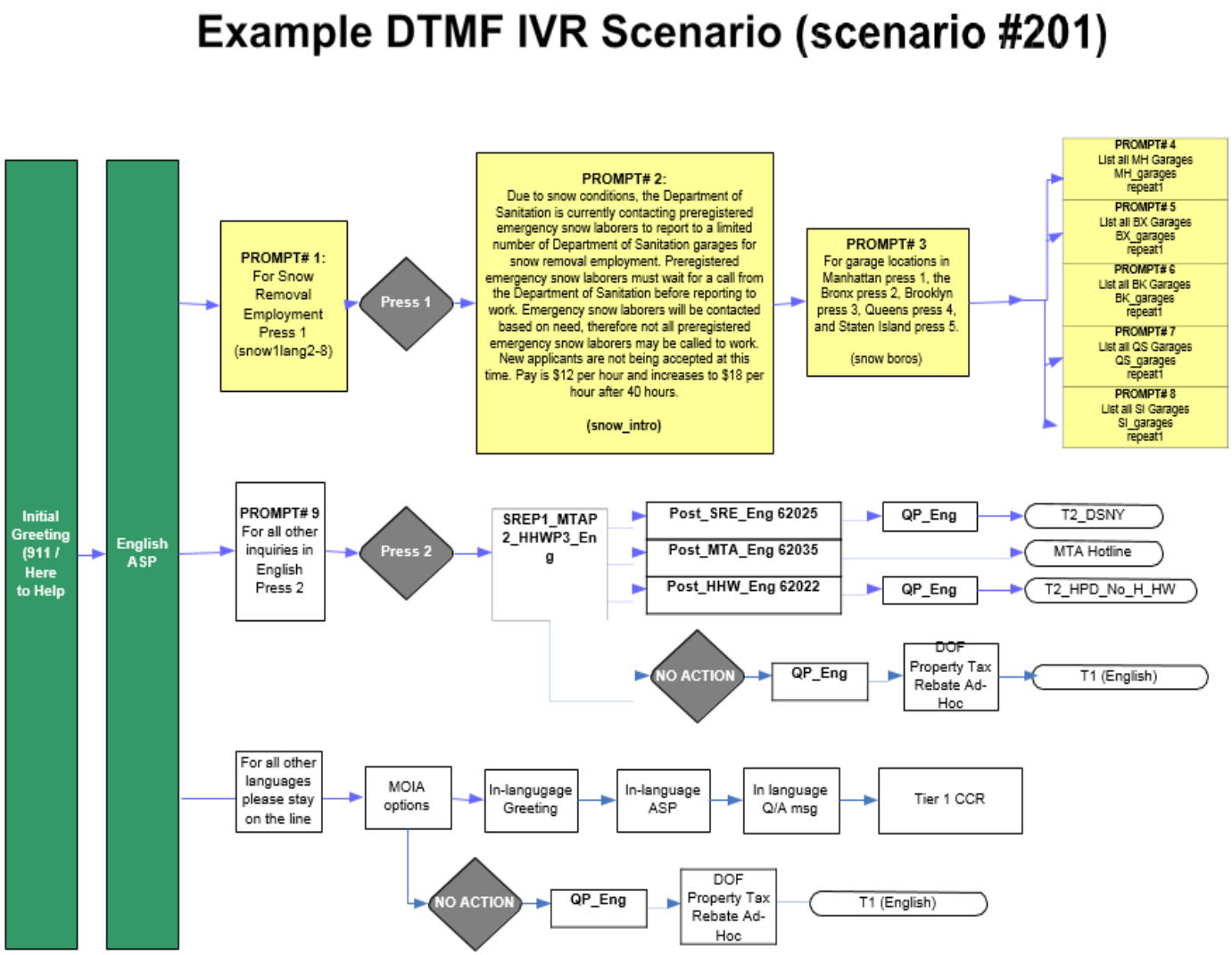
Note: The flow describes the current 311 alternate side parking logic. The vendor should follow the same logic when building the IVR application.

Figure 3: 212-NEW-YORK Call Flow



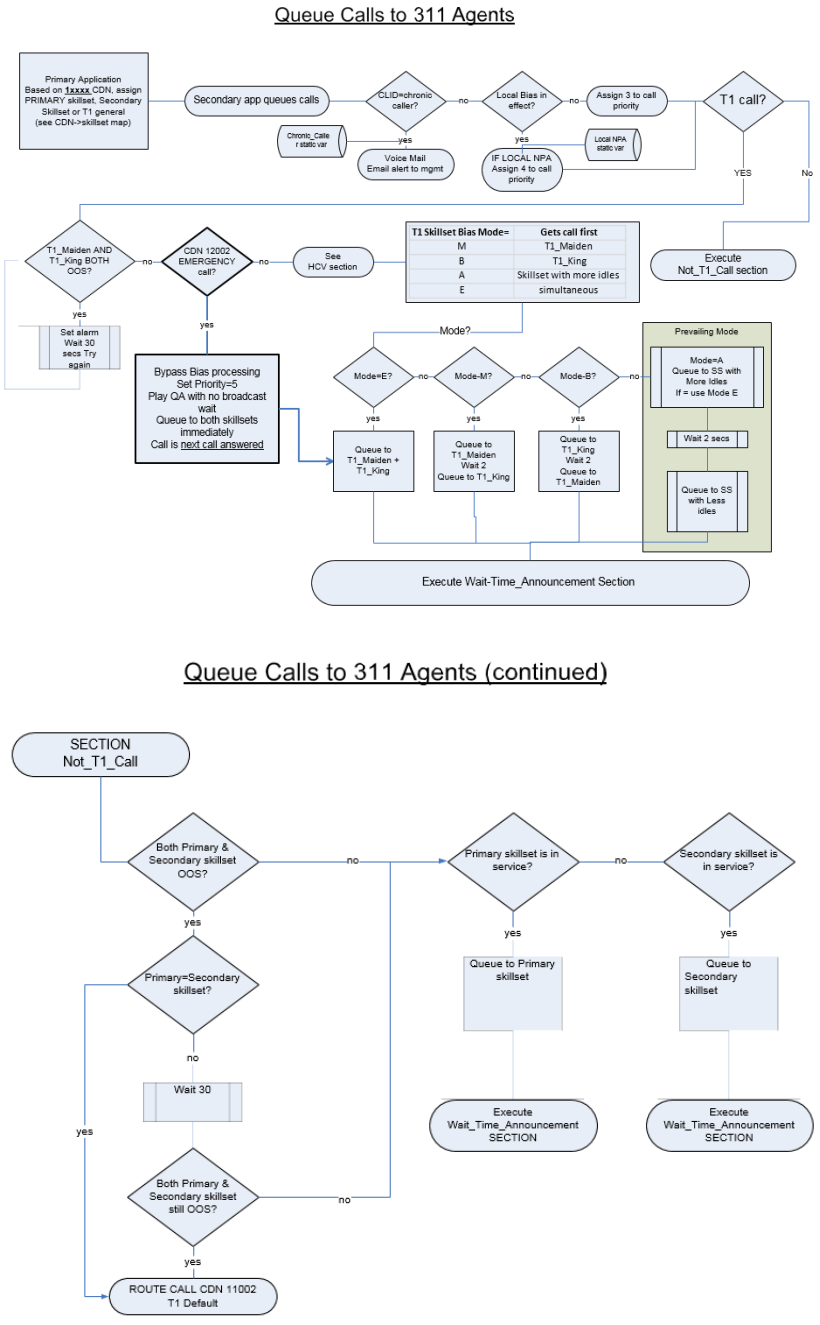
Note: The flow describes the current call flow that exists for 212-New-York. Callers dials the number when outside of New York City or if they have a phone number which belongs to a different state.

Figure 4: Sample DTMF IVR Scenario



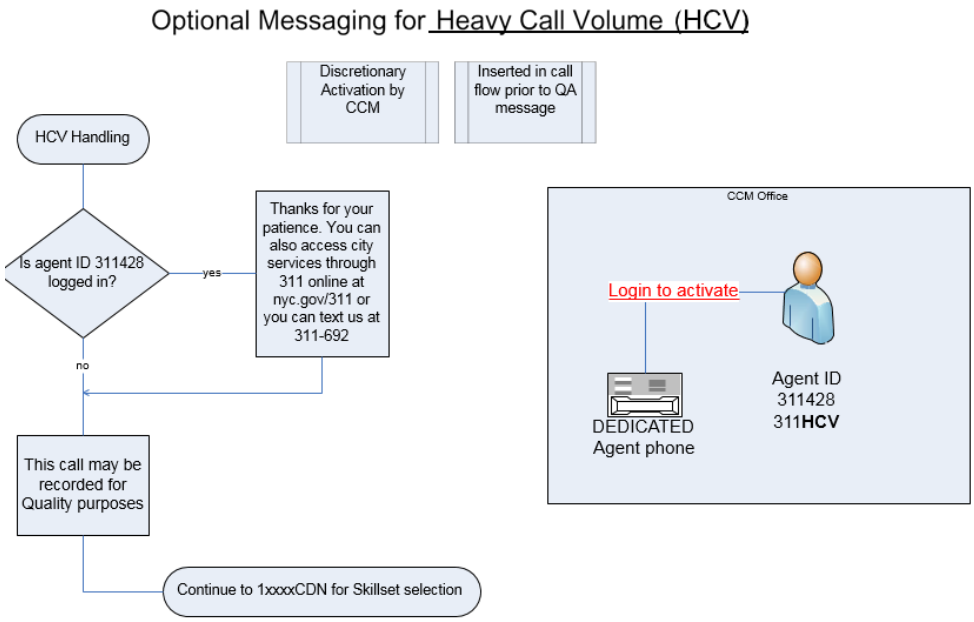
Note: The call flow describes how the calls are handled in the DTMF IVR (IVR with touchtone options). There are about 99 scenarios built in the DTMF IVR.

Figure 5: 311 Calls Queued to Agents



Note: The call flow describes how 311 calls are queued to the agent. The agents are multi-skilled.

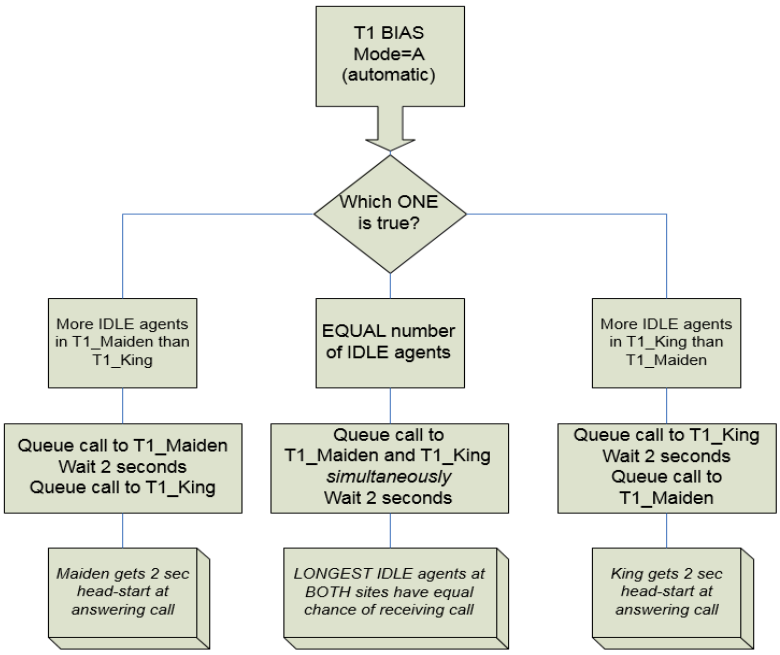
Figure 6: Optional Heavy Call Volume



Note: This flow explains how calls are handled in case of heavy call volume, which happens very often at 311.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

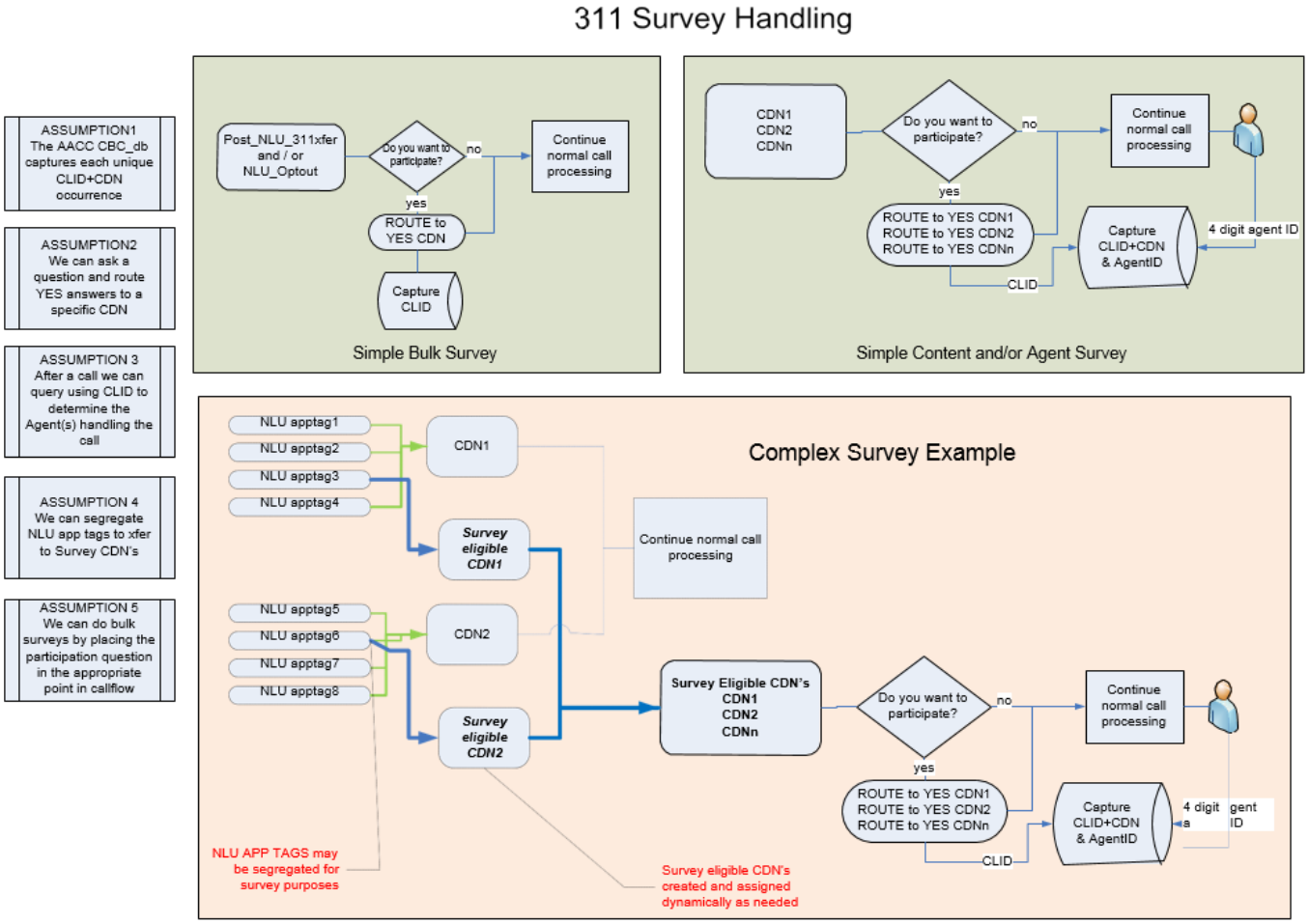
Figure 7: Calls Queued to Agents Measured as Longest Idle Agents



Note: This flow explains how calls are queued to the agents and how 311 determines the “longest idle agents” to queue the call.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

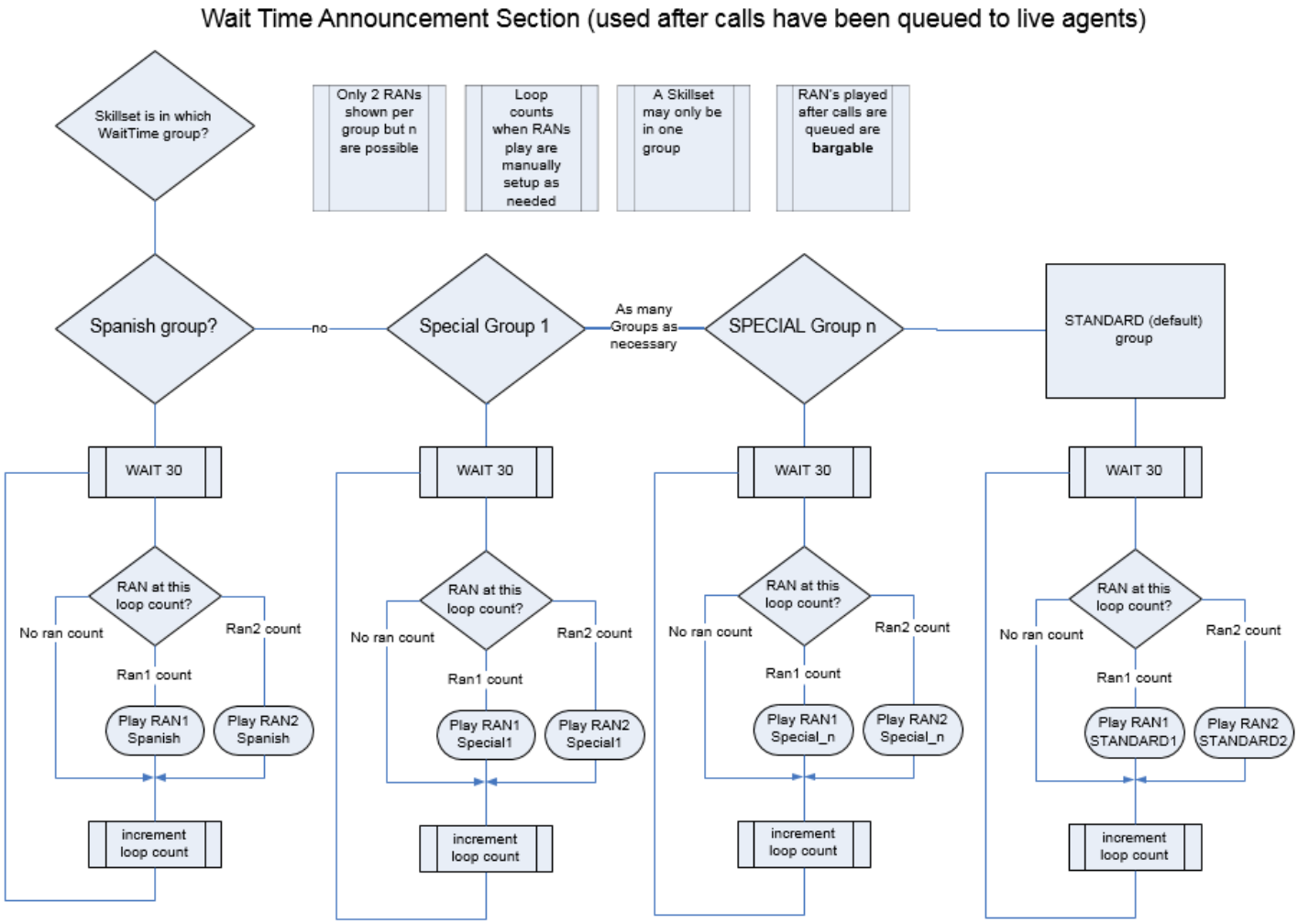
Figure 8: Survey Handling



Note: The flow explains the logic of how the 311 Survey Application handles customer survey calls.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

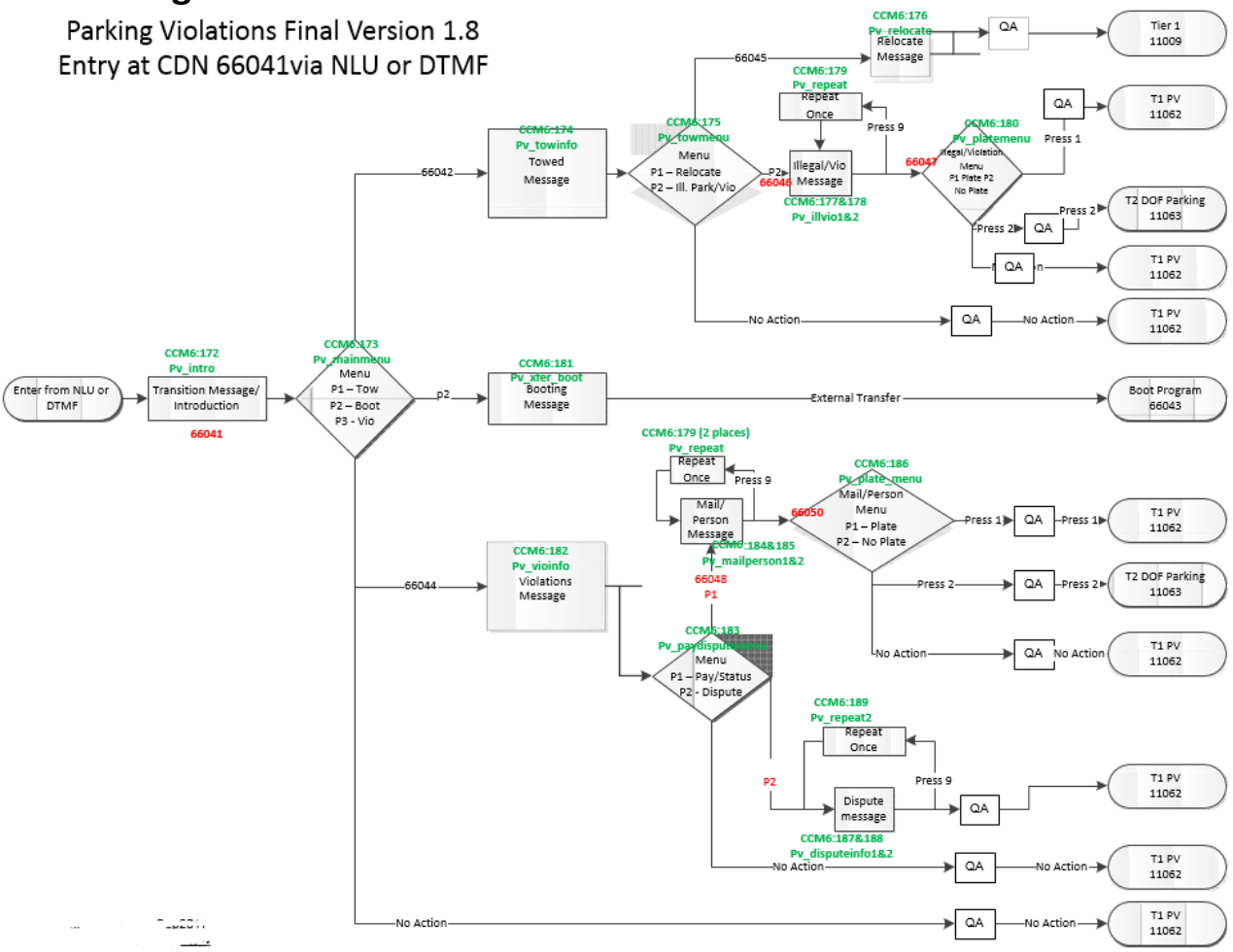
Figure 9: Wait Time Announcements



Note: This call flow explains the 311 wait time logic when a caller is waiting for an agent.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

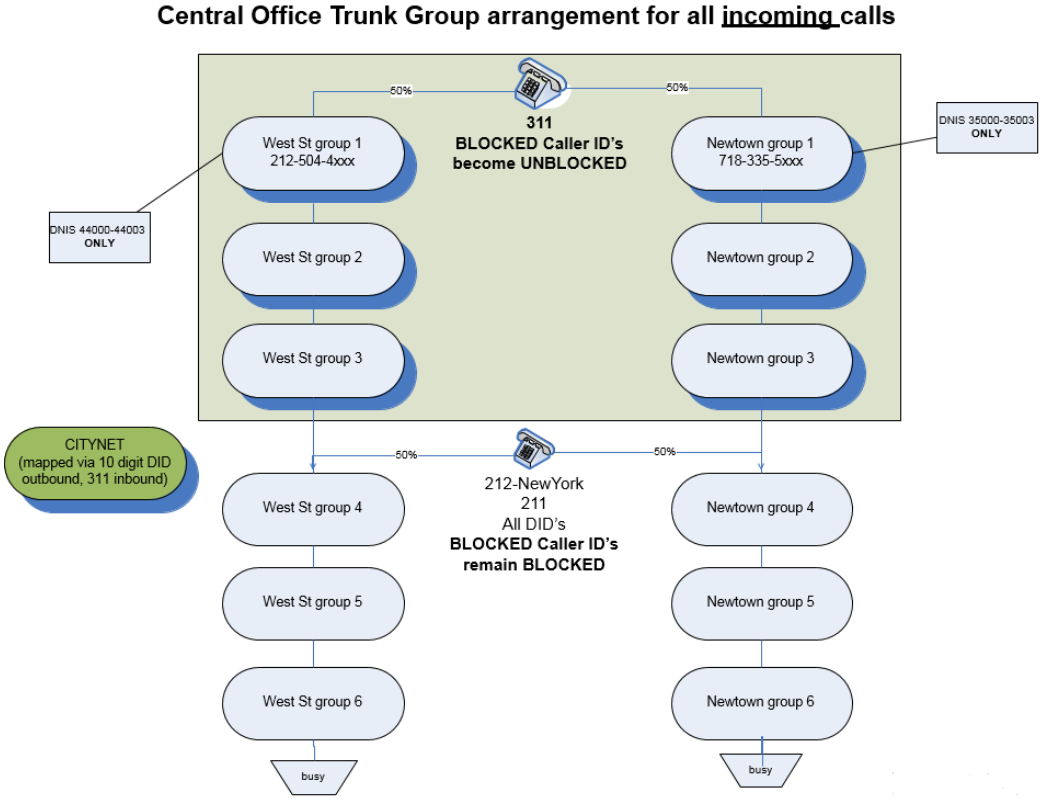
Figure 10: Parking Violations



Note: This call flow explains how parking violation calls are handled.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

Figure 11: CO Arrangement for Incoming Calls



Note: This call flow shows how calls are distributed through two Verizon Central Offices.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

Figure 12: Simplified CRS Plan

Simplified CRS Plan and Resulting Limitations

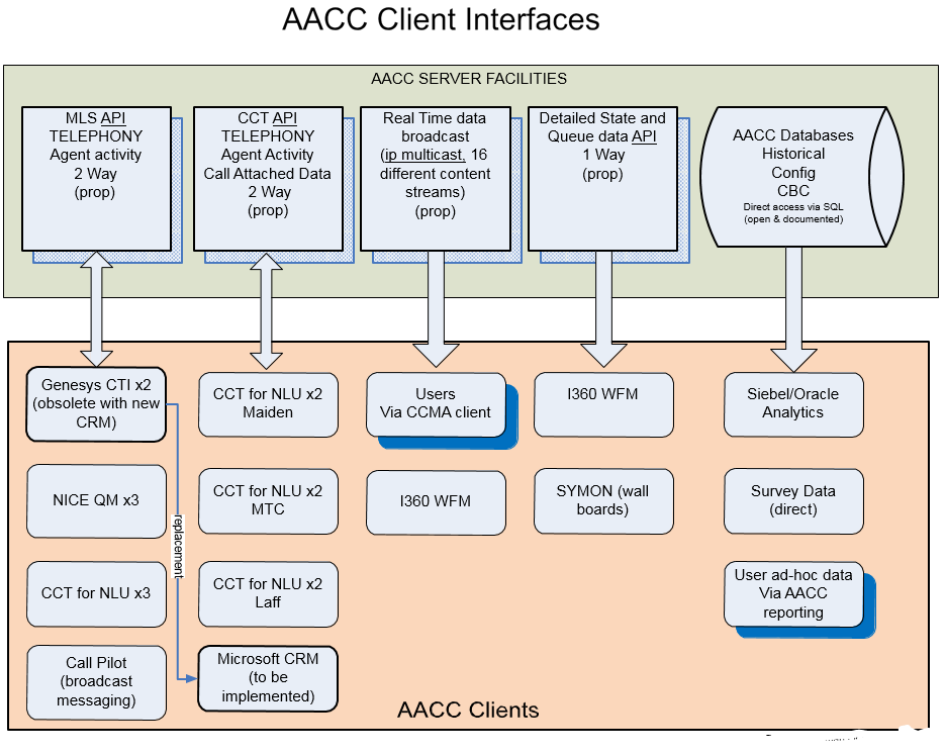
Standard Mode

	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6
311 Trunks	50% West/50% Newtown	100% West/0% Newtown	0% West/100% Newtown	100% Backup ML PBX	100% Backup BAT PBX	50%/50% ML/BAT Backup PBX
212NY Trunks	50% West/50% Newtown	100% West/0% Newtown	0% West/100% Newtown	100% Backup ML PBX	100% Backup BAT PBX	50%/50% ML/BAT Backup PBX
211	50% West/50% Newtown	100% West/0% Newtown	0% West/100% Newtown	100% Backup ML PBX	100% Backup BAT PBX	50%/50% ML/BAT Backup PBX
other DID's	100% West	office lines function	office lines do NOT function	office lines do NOT fu	office lines do NOT fu	noffice lines do NOT function
	Capacity=100%	Capacity=50%	Capacity=50%	Capacity=96 calls	Capacity=72 calls	Capacity=168 calls
	Full system Capability	Full system Capability	Full system Capability	No CTI	No CTI	No CTI
	Calls & Screens recorded	Calls & Screens recorded	Calls & Screens recorded	No recording	No recording	No recording
	WFM Integration	WFM Integration	WFM Integration	Manual scheduling	Manual scheduling	Manual scheduling
	Full RT & Hist reporting	Full RT & Hist reporting	Full RT & Hist reporting	no reporting	no reporting	no reporting
	Automated 911 conf	Automated 911 conf	Automated 911 conf	manual conferencing	manual conferencing	manual conferencing

Note: This figure shows how the Customer Routing Service (CRS) distributes calls in case of an emergency.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

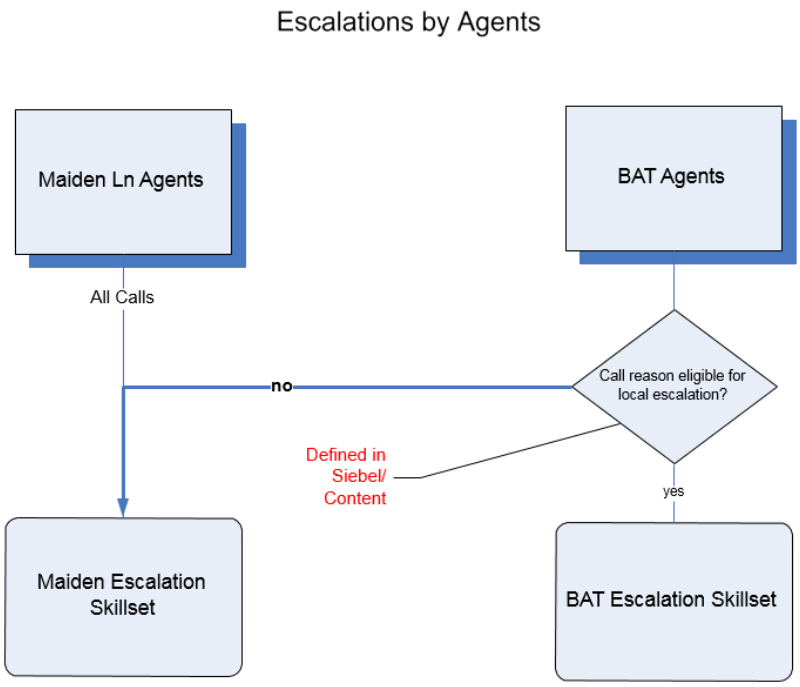
Figure 13: AACC Client Interfaces



Note: This figure shows all the 311 Application Layer connections with the PBX systems.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

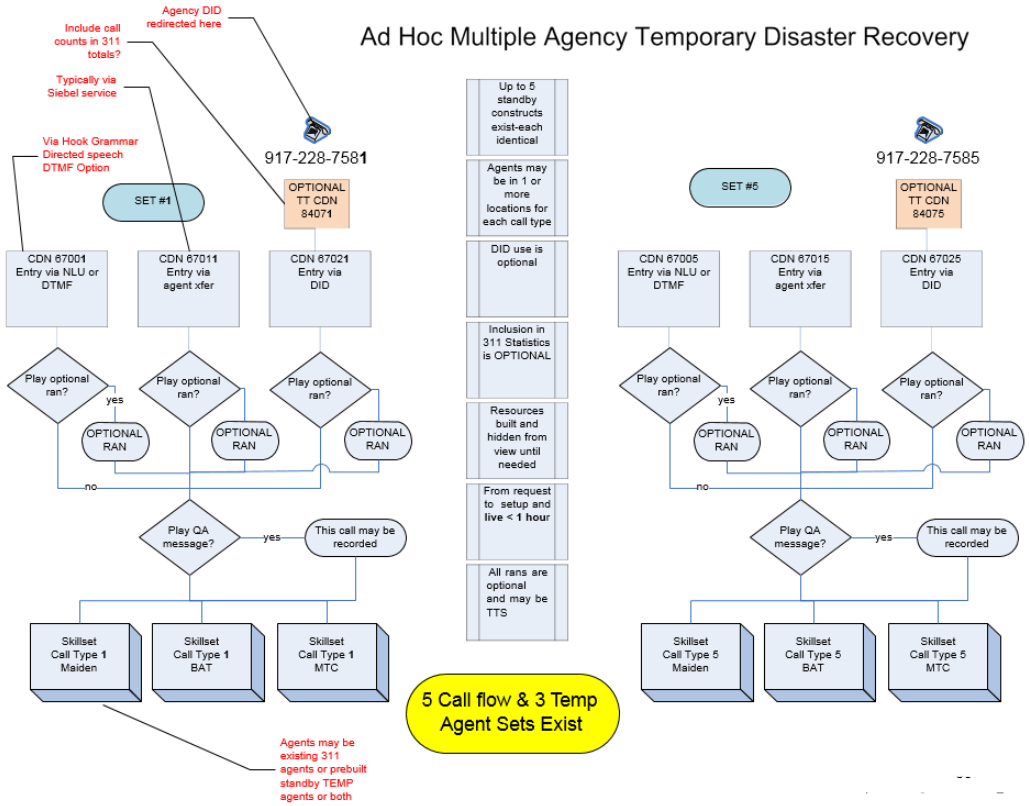
Figure 14: Escalations by Agents



Note: This figure explains how calls are escalated to supervisors.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

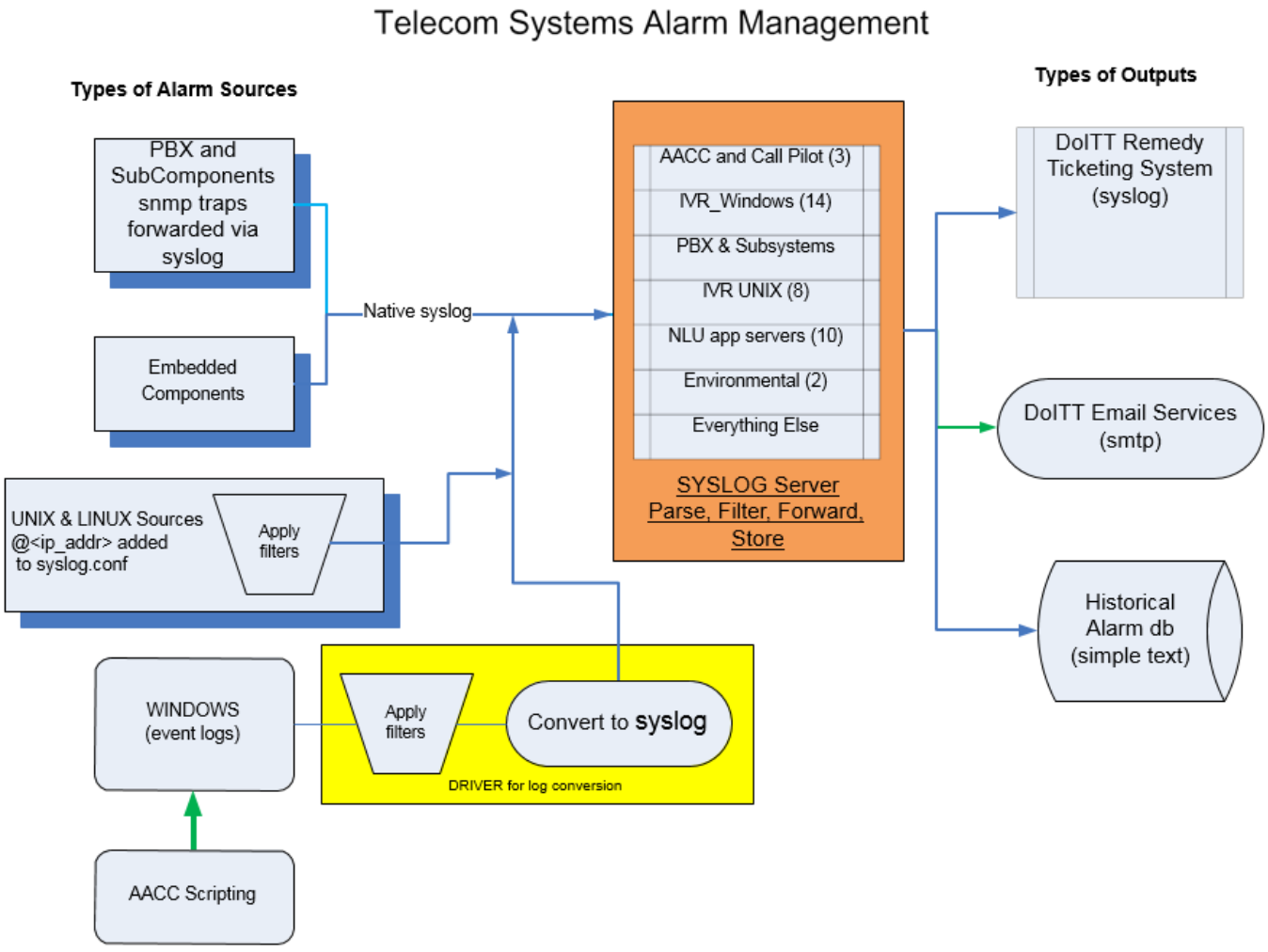
Figure 15: Ad Hoc Multiple Agency Temporary Disaster



Note: This flow explains call flow in case of telephony systems disaster.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

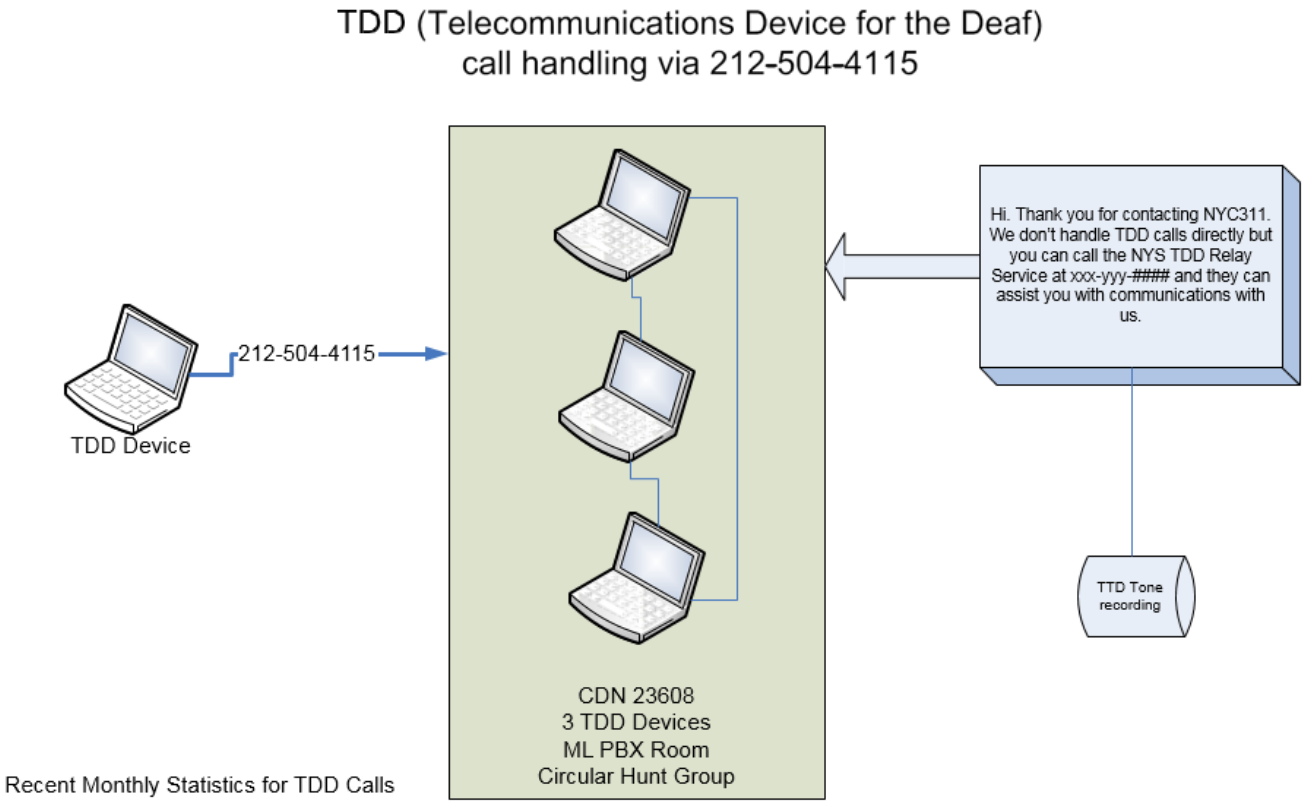
Figure 16: Alarm Management



Note: This flow explains how telephony system alarms are logged and alarmed with the Syslog database.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

Figure 17: TDD Call Handling



Recent Monthly Statistics for TDD Calls

CDN (Route Point) Name & ID: TDD_Counter - 23608	
Summary	67548
4/1/2017	11001
5/1/2017	11591
6/1/2017	11725
7/1/2017	10478
8/1/2017	12324
9/1/2017	10429
CDN (Route Point)	67548

Note: This flow shows how TDD callers are handled.

9. Itemized Technical Requirements

- 311 is currently using a heritage Avaya CS1000 Communications system to provide for its UC and CC needs today. The system must transition to a fully supported platform due to upcoming end-of-support issues.
- The Citywide IVR and the Nuance Natural language IVR must migrate to a fully supported platform due to upcoming end-of-support issues and to a new IVR platform without writing the application as new.
- The current MPS platform leverages Nuance Text-to-Speech and Speech modules (licensed per port) to support the current NLU application. DoITT must mitigate the Nuance licensing cost as the IVR applications migrate to a new platform.
- There are over 1000 announcements that exist on the current Call Pilot platform that must be migrated to a new media server platform. These are used for the front-end self-service applications.
- Migration of existing Workforce Optimization (WFO) and the recording platform to the new platform must be seamless and with no data loss.
- All the third-party applications (e.g. Symon multimedia boards, Nuance Natural Language Screen pops, i360 Workforce optimization, NICE Quality monitoring and recording application, Citywide BI Reporting tools) must fully integrate to the new platform.
- The Contact Center application should be able to perform automated outbound campaigns.
- The City has begun a project to provide Spanish in the NLU application on the existing MPS platforms. The Spanish IVR application must be part of the migration process.
- Chat / Email capabilities (multimedia) must be integrated with MS Dynamics. This will require full integrated Contact Center reporting with the other Contact Center modes (voice, chat, e-mail).
- It's critical to minimize or eliminate any business disruption due to the migration of the Contact Center applications. The intent is to have minimal changes to customer / agent call flows.
- There are thousands of lines of DoITT 311 AACC applications scripting (50 apps. 150 CDNs today) that drive current call flow processing and reporting. The intent is to minimize changes to these scripts and call flows and not disrupt customer / agent integrations.
- The new systems must maintain full business continuity in the event one or more locations is out of service.
- Active - Active application failover. In the event an application at one location node goes down, the same application will continue to run at the other location or node without any impact to the business.
- The contractor must provide a parallel system approach with gradual phase-in of the new system and with full replacement of all existing applications on the new system when completed.
- The new system must be tested after installation to validate parallel functional requirements.
- The proposed solution must be currently sized to meet all DoITT 311 third party application virtualization requirements. Supporting virtualization hardware / software needs to consider all vCPUS, memory, storage, and IOPs requirements. VMware environment must provide for instantaneous application failover capabilities.
- The application must support Windows 7 and 10 with cross-browser support.

10. Required Response Outline

Cover letter (required from all respondents), including the following:

- The name of the company responding to the RFI.
- The name and contact information for the single point of contact for all communications.
- A statement of all products and services the responder would provide for the system.
- A list of references (see Section 12)
- A statement that the responder understands the performance and availability required in a NG311 system in general and the specific expectations included in the RFI.

Responses to the questions in the General Section (required from all respondents):

- In the response, please copy the question and then provide your response.
- Responses should be clear and succinct. Complete, specific, detailed responses are appreciated.

Include any additional information not requested in the previous sections but that you deem important:

- Additional company and product information.
- Additional thoughts on meeting the requirements of NYC that weren't easily presented because of the way questions were asked.

11. Response Format

Question	Response
Name of person responsible for the information contained in this RFI	
Telephone number Email address Web page	
What is the name of your organization?	
How long have you been in business?	
How long have you been providing Contact Center systems?	
How many full-time engineers do you have dedicated to Contact Center systems?	
What vendors of 311 products and services do you have formal support agreements with?	
Have you implemented a large-scale government agency contact center? If so please provide information.	
In your experience in other large contact center migration projects, describe the following: 1. What was the migration like for the agents? 2. What was the caller experience like during the actual migration? 3. What support structure did you have in place during the migration process? 4. What was your timetable for migration? 5. Describe the impact to the business during the migration phase. 6. In your experience in other large contact center environments or other 311 environments, how have the needs for peoples with disabilities been handled?	
Total number of installations of the version of the software being proposed that have been carried out by your organization.	
Describe any third-party alliances, relationships, or dependencies.	
Please provide information on your implementation methodology.	Attach documents as required.
What documentation is provided with the software / system and in what format?	
Was your software written by your organization or acquired from a third party?	

System Administration	
Describe the type and complexity of system administration roles.	
What would be the Technical Administration requirements for DoITT?	
What do you anticipate would be the Business support requirements for DoITT?	
Training / Anticipated Learning Curve	
Do you offer formal user training?	
What types of courses do you run and what are their durations?	
What level of training would you recommend?	
Describe any training materials offered?	
Does the Systems Administrator have to be certified by your organization to manage the system? If yes, what type of certification do you require?	
What is your anticipated learning curve for report users?	
What is your anticipated learning curve for Technical Administrators?	
Infrastructure Requirements	
Minimum Requirements	Attach documents as required.
Recommended Requirements	Attach documents as required.
Requirements for future scaling	Attach documents as required.
Client Capabilities & Requirements	
Does your software integrate with Active Directory/LDAP?	
List the APIs and specific methods within the APIs the system supports.	
Does your software facilitate the setting of thresholds and provide alerts to users?	
Does the system support a method for call hang up, transfer, etc.?	
Does the system support backward compatibility of APIs?	
Does the system support a no hold conference feature without the need for additional third party integration or development?	
Can users easily create thresholds and alerts?	
How are these alerts communicated to the end user?	
Name all browsers that your system is known to be compatible with.	
Will your product work from a mobile device? Define limitations such as OS and functionality differences from desktop clients.	Attach documents as required.
Is the product accessible from the internet? What is required to deliver it?	

Third Party Integration	
Number of data sources that can be simultaneously accessed.	
Types of data sources supported.	
Name all third-party products required to meet the criteria described in this RFI.	
Does your system provide APIs?	
Data Transformation / Translation	
Describe the process of data transformation required by your system?	
What do you anticipate would be DoITT's level of effort to conduct the data transformation?	
Describe your consulting resources to help with data transformation?	
Consulting Services	
Describe your recommended engagement/scope of work to implement your software at DoITT/311.	Attach documents as required.
Have you provided consulting services to DoITT/311 in the past?	
Detailed Cost Model	
Estimate of scoped requirements	
What is included?	Attach documents as required.
Is there anything that would require an additional or third-party purchase to meet the requirements outlined in this RFI?	Attach documents as required.
Support offered? (Hours, methods of contact.)	
What is your annual maintenance?	
What is your expected product life cycle?	
What is your licensing model and prices?	
What is your products direction?	

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

PROJECT REFERENCES AND LIVE DEMONSTRATION, ROADMAP

The vendor should list at least three previous completed projects, providing the following information for each:

- Name of client including contact information.
- Government Agency contact center?
- Size of agency.
- Size of supported population.
- Current BI functionality being used.
- How long did the project take?
- Using Dashboard functions?
- Have you integrated with Microsoft Dynamics CRM, specifically SaaS deployments?Please provide roadmap for each of your applications (attach documents if required).

You may be selected for a live demonstration of capabilities if the City desires.

REMAINDER OF THE PAGE INTENTIONALLY LEFT BLANK

12. Appendix A- Glossary of Technical Diagrams of 311 Applications

Figure	Name	Description
1	311 Call Flow with Speech IVR	NYC 311 Call Flow, Call Arrival and Initial Handling
2	ASP	Alternate Side Parking (ASP) Logic (non-English languages selected in the DTMF app)
3	NYC 211	Call Flow for NYC 211 Dialing
4	DTMF IVR call Flow	Example of DTMF IVR Call Flow- we have about 99 DTMF IVR scenarios built in
5	Queue to Agents	Initial Call Queuing to 311 Call Center Agents
6	Heavy Call Volume	Heavy Call Volume Call Flow With Optional Messaging
7	Call Priority – Longest Idle Agents	Logic for Call Priority
8	311 Survey Application	Call Flow for 311 Customer Survey Application
9	Wait-Time Logic	Wait Time Announcement Section (used after calls have been queued to live agents)
10	DOF Parking violation	Call Flow Application for Department of Finance Parking Violation
11	Central Office Entry Point	Call Flow Application from Central Office NYC 311 PBX systems
12	CRS Verizon	Verizon Customer Routing Services for All the Trunk Groups
13	AACC Client Interfaces	AACC Client Interfaces Flow
14	Agent Escalations	Agent Escalations Call Flow Application
15	Temporary Disaster Recovery	Call Flow During Temporary Disasters
16	Application Alarm	311 Applications Alarm Management
17	TTY/TDD	Call Flow for the Telecommunications Device for the Deaf

13. Appendix B – Glossary of Specific Terms and Acronyms

The acronyms and definitions listed below are included to ensure clarity in the RFI.

Acronym/Term	Definition
WFM/QM/WFO	Workforce Management/Quality Management/Workforce Optimization For this RFI the WFO platform must combine QM and WFM into one system.
Symon	Provider of the display boards throughout the call center, showcasing many stats that can be altered by the call center
ACD	Automatic Call Distribution
IVR	Interactive Voice Responsive
Nuance	Natural Language IVR
Widget	Screen Pop from Natural Language IVR
CRM	Customer Relationship Management
Siebel	Current Contact Center CRM
MS Dynamics	Microsoft Dynamics CRM
CS1000	Communication Server 1000
SR	Service Request