Response for Fire Inspection Management System RFP No. 2019-038-006

December 11, 2019

V0.2

Rajiv Desai

CEO

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Submitted by:

3Di, Inc

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1. Section 1: General Information

1.1 Cover Letter

Carr Oduro
Los Angeles Fire Department
Accounts Receivable – Public Counter
Fire Inspection Management System (FIMS)
200 North Main Street, Room 1620
Los Angeles, CA 90012
Attention: Contracts Management Section
E-mail: carr.oduro@lacity.org

Re: 3Di, Inc. Response to RFP No.2019-038-006 Fire Inspection Management System (FIMS)

Dear Carr,

Thank you for the opportunity to respond to the Los Angeles Fire Department (LAFD) RFP No.2019-038-006 Fire Inspection Management System (FIMS). 3Di has established leadership in providing fire prevention management by implementing fire inspection solutions in cities like Los Angeles, Glendale, Hayward, and La Habra Heights.

We understand this project requires a solution designed to design and implement a Fire Inspection Management System (FIMS) that meets the needs of the LAFD and complies with all federal, state and local regulatory and reporting requirements related to the Department's fire inspection and prevention duties. The Department expects that an enterprise FIMS will assist in maintaining a common process across inspection types that is easy to use by both sworn and civilian staff members who are responsible for fire inspections and all related administrative duties (e.g. notifications, billing, etc.). Ideally, this system will track and manage properties, incorporate multiple codebooks including city ordinances, and perform field inspections quickly and effectively to improve the overall fire safety for the citizens of Los Angeles. The agency is looking for a turnkey solution that is cost-effective to operate and maintain and that can be easily modified to support any future changes to business processes to the fire inspection process.

LAFD and 3Di have an effective ongoing partnership in regard to fire prevention and inspection. Starting in 2015, the award-winning Fire Inspection Management System (FIMS) has provided a highly efficient solution for LAFD's fire permits inspections.

Since 2016, LAFD has achieved full defensible space (Wildland Urban Interface) compliance with the Vegetation Management Solution (VMS3) and has been the model of success for California and the nation.

In 2018, LAFD went live with the R1R2 inspection system developed by 3Di in cooperation with LAFD Fire Prevention Bureau staff. Combining the permit related inspections (FIMS), Brush Inspections (VMS3) and the R1R2 inspections (R1R2), as of today, nearly 50% (218,675) of the total annual LAFD Inspections (393,267) are performed on systems developed, managed and maintained by 3Di.

3Di will complete this work within the established time frame and we do believe that we are the best qualified to perform the engagement. Our proposal is an irrevocable offer, valid for 180 days. Our firm is

willing and able to enter into an agreement with Los Angeles Fire Department, complying with all Terms and Conditions set forth if our solicitation is accepted.

For the purpose of this proposal and any following discussions or agreements, 3Di identified the individuals listed below as the authorized negotiators and signers who may act on behalf of our organization:

1. **Rajiv Desai, President & CEO (negotiator and signer)**: Mobile (714) 936-9283, fax (714) 257-1386, and email rajiv.desai@3disystems.com.
2. **Mihir Desai, Vice President & CFO (negotiator and signer)**: Office (714) 257-1100 x143, Mobile (949) 254-5681, fax (714) 257-1386, and email mihir.desai@3disystems.com.
3. **Shakir Shaikh, Director of Custom SaaS solutions (contact for clarification)**: Mobile (601) 345-5336, fax (714) 257-1386, and email shakir.shaikh@3disystems.com

Thank you,

Mihir Desai
COO & CFO
(714) 257-1100 x143
(949) 254-5681
mihir.desai@3disystems.com

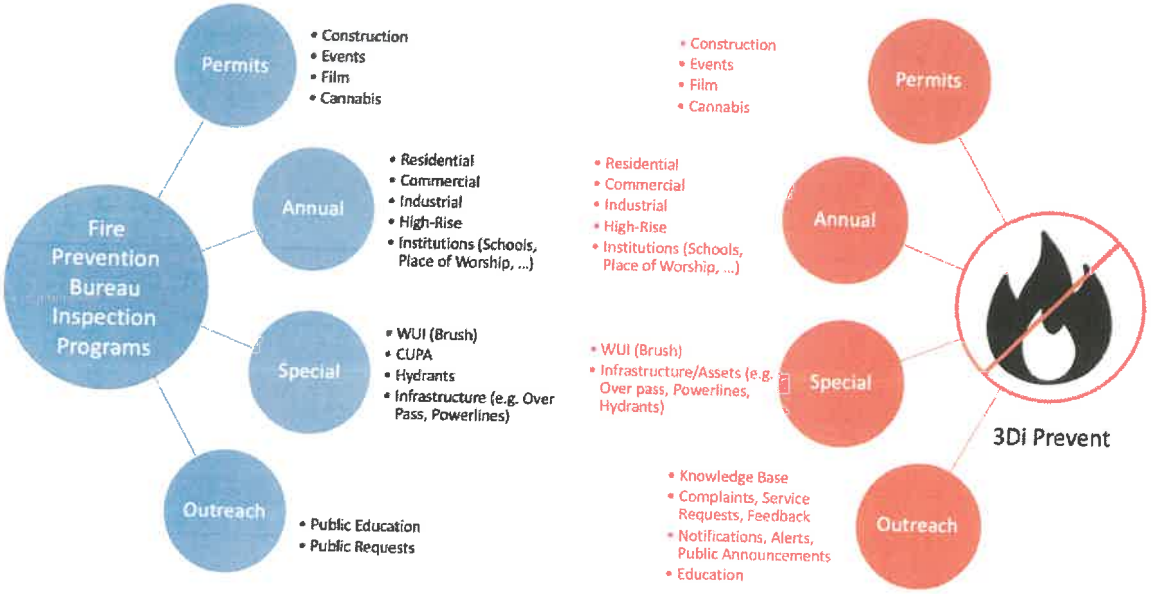
Rajiv Desai
CEO
(714) 936-9283
rajiv.desai@3disystems.com

1.2 Executive Summary

Since 2001, 3Di has been a pioneer in developing inspection and code enforcement solutions. 3Di developed a system called CCRIS (Code, Compliance & Rent Information System). The Harvard Kennedy School of Government recognized the CCRIS program for Efficiency in Government. CCRIS is considered the "gold standard" in the industry for automating and managing housing inspection and code enforcement. There are four key elements to success of an inspection system. First, inspections are driven by code thus a robust code management system is required. Second, the scope of inspection is based on property inventory in the Fire Prevention Bureau's district. Thus, a reliable property inventory management system is essential. Third, each inspection type (program) is different and changes over time due to changes in codes and ordinances. An inspection system must be able to represent each inspection process independently and accommodate changes to the inspection workflows over time. Finally, for an inspection system to be effective, the inspection system must be user friendly and developed from the perspective of all its stakeholders including the inspectors and the property owners.

3Di has been working with the Los Angeles Fire Department's Fire Prevention Bureau (FPB) since 2014. Working closely with the Development Services, Brush Clearance Unit (BCU) and R1R2 Inspectors, 3Di has developed three very important inspection systems, namely, Fire Inspection System (FIMS) for constructions permitting and inspections, VMS3 for Annual Brush Inspections and R1R2 Inspection system for Annual R1R2 inspections. Today nearly 50% (218,675) of the total (393,267) inspections done by the FPB are performed using the systems developed by 3Di. More importantly, LAFD is one of the handful fire agencies in California that performs 100% of required WUI inspections. 3Di is both humbled and grateful for the opportunity to work with LAFD but also for gaining deep insight into the needs of the Fire Prevention Bureau. This association with LAFD has allowed 3Di to develop what we believe is the most sensible and state of the art Fire Inspection system in the industry. 3Di's Fire Inspection Solution, 3Di Prevent, is the first product designed and developed from the perspective a Fire Prevention Bureau.

The Fire Prevention Bureaus of large Fire Department such as the Los Angeles Fire Department typically have four types of inspections functions – Permitting related inspections, Annual inspections, Special inspections and Outreach. Permit related inspections refer to inspection for constructions, events, film, cannabis, etc. where a permit may be required by the applicant. Annual inspections refer to any inspection program related to regular inspections required for code compliance such as Residential (R1, R2), Commercial, Industrial, High-Rise, Institutions (Schools, Places of Worship, etc.). Special inspections refer to inspections that may be regional or specific to a fire department such as WUI (Brush), CUPA, Infrastructure (e.g. Overpass, Powerlines, etc.). Finally, Outreach related to Fire inspections is an extremely important function of any Fire Prevention Bureau. Outreach includes managing complaints, notifications, announcements, service requests, education, training, etc. Following diagram shows how the 3Di Prevent solution is designed to exactly fit the needs of LAFD's Fire Prevention Bureau for a comprehensive Fire Inspection Management System.



Offered as Software as a Service (SaaS), 3Di Prevent is 3Di Prevent leverages the state-of-the-art cloud platform technologies that frees our customers from the burdens of hardware and software ownership, management and maintenance. Our transparent and fair pricing model is not based on number of users but simply on number of inspections. Furthermore, we offer an innovative, customer focused support model we call the "Genie Support" that does not nickel dime our customers with change orders – we are there, whenever you need us.

3Di has not only worked with LAFD but also with a number of other departments in the City of Los Angeles that work closely with LAFD including LADBS, LABOE, ITA, HCIDLA, LASAN, LAPD, EMD and LADWP. 3Di has not only developed knowledge about various systems, solutions and processes in these city departments but also how the city departments work with each other and with the constituents. Every year, millions of transactions are done on business-critical systems in the systems that are developed, and in some cases, managed by 3Di. These include, LADBS's ePermitting Portal, myLA311, HCIDLA CCRIS and LADWP's Customer Self Service Portal.

3Di is a Los Angeles based company and has been a technology partner to the City for nearly two decades with numerous mutual successes. 3Di's product, 3Di Prevent, is built with LAFD as the reference model. We are committed to LAFD's success.

1.3 Proposer Qualifications

Many of the reasons why 3Di is uniquely qualified to provide the best solution for LAFD's Fire Inspection Management requirements are covered in the Executive Summary (Section 1.2). The key points are:

- Having developed three successful inspection solutions for LAFD, FIMS, VMS3 & R1R2 Inspections, 3Di has worked extensively with Los Angeles Fire Prevention Bureau and therefore understands the needs of LAFD FPB stakeholders.
- 3Di has successfully delivered and continues to develop and manage critical systems for a number of departments of the City of Los Angeles that also work with LAFD. Leveraging the knowledge of the city's systems and city's departmental processes, 3Di is best positioned to integrate external systems that provide information about permitting (LADBS), GIS (LABOE), property inventory (HCIDLA, LABOE), 311 service requests (ITA, LASAN), emergency contact information (EMD, HCIDLA), billing (LA Finance, LATAX), etc.
- 3Di's solution is the only solution that is developed from ground up for the needs of Fire Prevention Bureaus. LAFD FPB was the refence model used for the development of 3Di Prevent – 3Di's Fire Inspection Management System.
- 3Di's solution, known as 3Di Prevent, combines state of the art cloud-based technologies with an innovative support model that is offered as a turn key Software as a Service (SaaS) solution that minimizes cost of ownership, provides the best in class technologies and frees LAFD from development, management and maintenance of the solution. The system's flexibility can support completely independent business workflows for each inspection type that can be modified at any time with minimum effort.

In the following we provide brief explanation of how 3Di Prevent addresses each of the fire inspection challenges faced by LAFD as presented in the RFP.

- *Mission-critical applications approaching end of life, supported by multiple internal and external vendors, without a long-term support plan or maintainability model.*
  3Di's offering will replace all of the mission-critical inspection applications with a single unified Fire Inspection System. 3Di Prevent will also integrate with other city and LAFD systems. The new system will be maintained, managed and supported by 3Di.
- *Lack of common process for all Inspection types (even with nuances by Program Areas) have resulted in many disparate business practices and one-off software solutions across Sections.*
  Designed from ground-up to service the needs of the Fire Prevention Bureaus, 3Di Prevent is based on a unified platform consisting of shared property inventory, code and inspection cases management systems.
- *Redundant and incorrect information across multiple systems due to the lack of data integration/central owner for data.*
  3Di Prevent uses central property inventory management and attaches inspection cases to each property. This property centric approach maintains data integrity and a unified reporting model.
- *Limited reliable remote capabilities (real-time and offline) for inspectors.*
  3Di Prevent includes a unified field inspection application that supports scheduling, property inventory and case management in the field with or without connectivity. All inspection types are supported.

- *Limited to or no customer self-service capabilities for requesting and/or paying for inspections and services.*

  3Di Prevent is designed from the perspective of all stake holders including the customer. Customers can initiate and complete all transactions including complaints, service requests, payments and inspection related functions from the portal.
- *Lack of access to valuable information – Data is not readily available for reporting or integration with other systems because of the many stand-alone systems.*

  Common data model allows integrated reporting, import and export of inspection related data.
- *Difficult to change – It is difficult to make timely changes to data collection fields, workflows and business rules. The Department is very dependent on the contractor and the process is cumbersome.*

  Recognizing the need to change the workflows, 3Di Prevent supports flexible workflows engine that is configuration driven instead of needing to program every time. Furthermore, 3Di's innovative support model, "Genie Support", makes available unrestricted support that is not just a help-desk.
- *Real-time status – The Department is unable to see the status of an inspection and its state of completeness or adequately alert responsible personnel in a timely manner when reports are incomplete or missing.*
- Centralized data model combined with dashboards, analytics and reporting capabilities of 3Di Prevent, allow real-time engagement with inspection data for actionable insights.
- *Customization of data collection – The Department's ability to keep up with evolving business rules and changes for compliance and standards, such as fire codes.*
- One of the key pillars of our solution is Code Management. Code management allows fire prevention team to adapt to constantly changing compliance standards.
- *Integration with new technology – The Department is limited in its ability to integrate new technology in the Fire Inspection Process, such as GPS and Inspection Inventory.*

  3Di Prevent is a based on modern service-oriented architecture enabling not only easy integration with any external systems but also allows replacement or upgrade of system components to take advantage of new technologies and capabilities without having to change the entire system. 3Di Prevent supports GPS and Inspection Inventory Management.
- *Inventory reconciliation to identify buildings, businesses, etc., that are unknown and currently not inspected.*

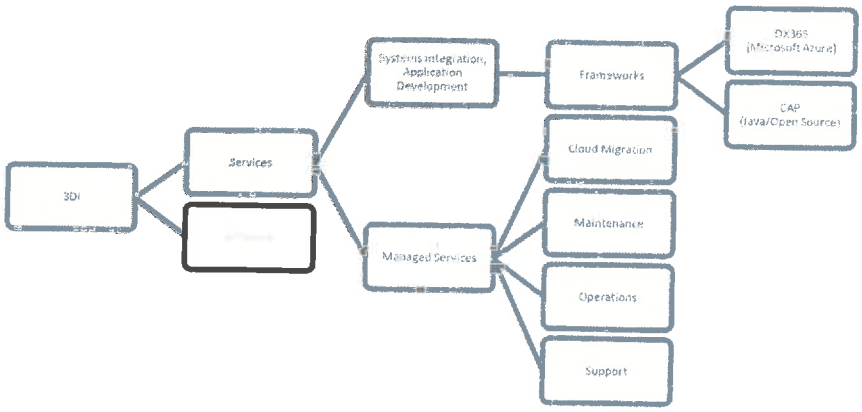
  Common Property Inventory Management with all Inspection Cases attached to property prevents reconciliation and makes it simple to identify all such properties/businesses.
- *Integration with City Department Applications - The Department is limited in its ability to share data with other City Departments, especially in cases where joint services are being provided that require an interactive workflow.*

As noted above, 3Di has worked with the City with for nearly two decades on many of the critical systems that LAFD also needs to integrate with. The system architecture of 3Di Prevent allows integration with City's systems. Our platform is currently used in the City for such integrations.

1.4 Company Overview

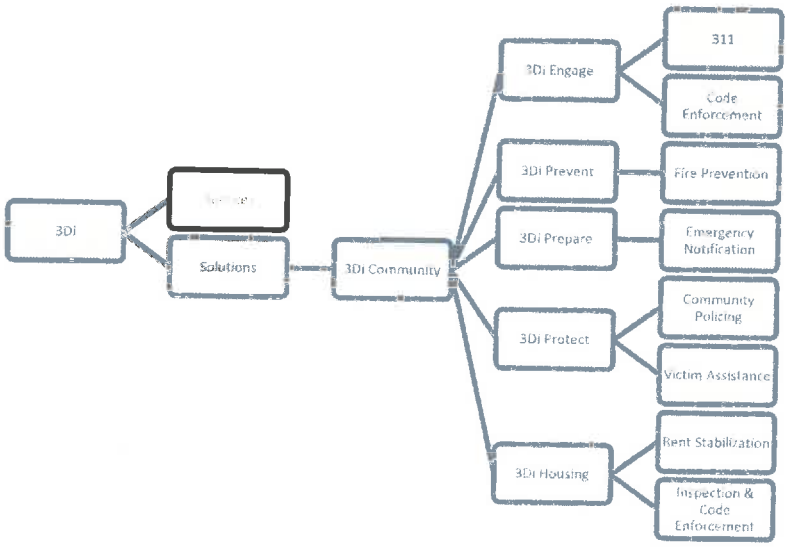
For nearly 20 years, 3Di has been enabling digital transformation for the public sector clients through technology services & innovative solutions. 3Di's Services include systems integration, mobile and web application development, product development, cloud enablement, and managed services on Microsoft, Amazon, Oracle and open source technology platforms.

3Di Services



Leveraging two decades of experience in delivering innovative technology services and deep knowledge of the public sector business processes, 3Di has developed a comprehensive SaaS (Software as a Service) solution platform called 3Di Community, and business-focused solutions based on the platform for civic engagement, public safety & affordable housing.

3Di Solutions



3Di is a certified partner of Microsoft (Gold), Amazon & ESRI. 3Di is a certified Microsoft Cloud Service Provider (CSP) for Azure Government and Azure Commercial Cloud Services. 3Di is also a Gold Partner of Oracle.

3Di has provided enterprise class solutions to several local, state, federal and military customers. Following are some of 3Di's currently active customers.

State & Local

City of Los Angeles
Housing + Community Investment Dept. of LA
LA Department of Water & Power
LA Department of Building and Safety
LA Department of Sanitation
LA World Airports Authority
Los Angeles Department of Public Works
Los Angeles Information Technology Agency
Los Angeles Office of Mayor
Los Angeles Unified School District
Los Angeles Fire Department
Los Angeles Police Department
City of Alameda, CA
City of Atlanta, GA
City of Beverly Hills, CA
City of Mountain View, CA
City of Glendale, CA
City of Pico Rivera, CA
City of Las Vegas, NV
City of El Monte, CA
City of Bell Gardens, CA
City of South El Monte, CA
City of Norfolk, VA
City of Arlington, TX
City of Hayward, CA
City of Seattle, WA
Seattle City Light
County of Orange, California
County of El Paso, Colorado
County of Los Angeles
LA County Sheriff Department
LA County Department of Health Services
LA County Office of Assessor
LA County Department of Public Works
Orange County Department of Transportation
Santa Ana College
State of California, Department of Public Health
State of Alaska

Federal & Military

Edwards Air Force Base
Security & Exchange Commission
National Academy of Sciences
Department of Justice, USSC
US Department of Navy

3Di and 3Di's customers has won a number of awards and accolades for 3Di's services and solutions.

- Innovation in Government Award, Harvard University, Kennedy School of Government for Los Angeles Housing Department CCRIS System
- Certificates of Appreciation, Los Angeles Housing Department for CCRIS, City of Los Angeles for myLA311, City of Los Angeles Fire Department for VMS, City Attorney Office for the Victim Assistance Program.
- 2014 - City of Los Angeles - Most Valuable Program, Mobilizing Government (for MyLA311)
- 2015 – Oracle Award for Innovation, Mobile
- 2016, 2017 - City of Los Angeles – Digital City – 1st Place (myLA311)
- 2018 – City of Atlanta – CS Week Award for Excellence (ATL311)
- 2019 – City of Last Vegas - Smart 50 Award for Mobile (GoVegas)
- 2019 – City of Norfolk, VA - Digital City - 1st Place (myNorfolk)

3Di is Los Angeles area based, privately held firm, organized as a California Corporation (S Corp).

Contact:	Rajiv Desai, CEO
	Phone: +1 714.936.9283, Email: rajiv.desai@3disystems.com
Address:	3 Pointe Drive, Suite 307, Brea, CA 92821, USA
Website:	www.3disystems.com
Number of years in Business:	23 years
Number of Employees:	320

3Di is a well-managed, financially stable firm that has been profitable for all of the 23 years it has been in business. 3Di has no debt and can support operational cash flow needs for typical public-sector projects of over $15-$20 Million annually.

1.5 Failure to Complete Work Awarded

3Di has experienced no termination for default in the past (5) five years.

1.6 Market Position and Strategy

Most fire inspection solutions in the market are adapted from case management and inspection systems developed for other domains such as building services, general field inspection, etc. They fail to recognize the specific needs of code driven fire prevention inspections. Furthermore, they do not recognize the complexity, scale and constantly changing nature of code compliance in a large and dynamic city like Los Angeles.

3Di's approach is not to fit a solution to a problem, but to develop a solution to a problem. 3Di's solutions were developed by working with relevant stake holders such as inspectors, captains, and customers. As mentioned earlier in Section 1.2, 3Di Prevent, 3Di's Fire Inspection Management solution is modeled after the LA Fire Department. 3Di's approach to product development is guided by "relevance" and "user experience".

3Di developed the first comprehensive solution for WUI inspection (VMS3) with LAFD. The solution is now being used by several other fire departments in California. 3Di was also the first to introduce a Fire Inspection Management solution that is driven by Property Inventory Management and Code Management creating a unified view of Fire Prevention instead of siloed approach to inspection taken by other vendors. This demonstrates 3Di's leadership in the FIMS market. Leadership based on relevant innovation.

3Di recognizes that, first, a public sector agency such as LAFD, serves a community of stake holders including customers, agency staff, elected officials, partner agencies and vendors. The stake holders expect transparency, efficiency and accountability in all services provided by the agency. Secondly, with limited resources, the public sector agencies are inherently at a disadvantage in keeping up with the rapid pace of innovation in technologies.

3Di's two strengths are decades of experience in delivering innovative technology services to public sector clients, and, a proven track record of leadership in developing technology solutions through innovation and partnerships with leading technology vendors such as Microsoft, Amazon, ESRI, Google, Oracle & others.

3Di's long term strategy for growth consists of two prongs. First, to grow 3Di's Fire Inspection Management solution, 3Di Prevent by incorporating new technologies and best practices in inspection and civic engagement. Second, to grow the customer base incrementally through customer education and references. 3Di's product development, marketing and sales teams include subject matter experts who

have first-hand knowledge and experience of inspections. 3Di is also actively participates in California Fire Prevention Organizations (FPOs) and conferences for exchanging ideas about Fire Prevention trends best practices. 3Di involvement in other domains such as housing and civic engagement also bolster the value of 3Di's Fire Inspection Management solution.

Increasingly, public sector agencies are relying on acquiring solutions through subscription rather than long term ownership, management and maintenance of hardware, software and related resources. This shifts the onus of product development for long-term relevance and reliable customer support on the subscription providers. 3Di recognizes this trend to be an imperative in its long-term growth plans. 3Di Prevent is offered as Software as a Service (SaaS) solution for Fire Inspection Management System. 3Di's innovative "Genie Support" is based on the idea of partnership with customer for long term support of the product that accommodates ongoing changes in an affordable and scalable manner.

3Di's experience in working with LAFD and the City of Los Angeles, 3Di's leadership in development of Fire Inspection Management based on principles of "relevance" & "user experience", and, 3Di's innovative Support model uniquely qualify 3Di to implement the Fire Inspection Management for the Los Angeles Fire Department.

1.7 Use of Subcontractors

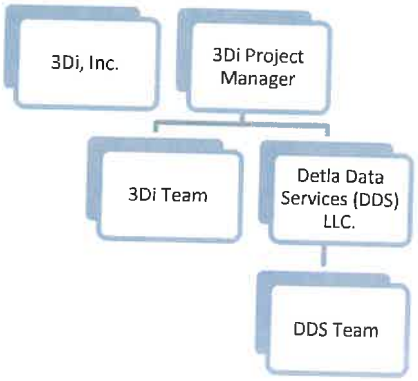
After performing the outreach for potential SBE/DBE/MBE subcontractors on LABAVN, 3Di has identified the following Subcontractors for possible use in the implementation of the Scope of Work associated with this RFP:

Firm Name, Address, and Telephone	Status	Description of Subcontract Work to be Performed
Delta Data Services LLC **One World Trade Center, 8th FloorLong Beach, CA 90831** **Phone: 562-366-4774** **www.dds-llc.com** **elarsen@dds-llc.com**	Certified Small Business Enterprise (SBE), Disadvantaged Business Enterprise (DBE),	Business Analysis and QA Services

Additional information about the proposed sub-contractors is provided under Section 5 – Optional Appendices as "Appendix S".

3Di will be the decision maker and responsible for the services provided by the identified subcontractors as applicable. As per the requirements of this RFP, 3Di expects LAFD to maintain a contractual relationship only with 3Di as the Prime Contractor and not enter into separate agreements with any of the proposed sub-contractors. 3Di's proposed sub-contractors will be subject to all of the same terms and conditions as 3Di.

The following is the organization structure indicating the relationship with the subcontractor.



1.8 Experience and References.

1.8.1 Primary References

Reference #1	
Client Name	**Los Angeles Fire Department -Development Services**
Project Summary	Permit issuance and Inspection management program
Contact Name	1. Hani Malki 2. Capt. Dwayne Laurent
Contact Title	1. SR FIRE PROT ENGINEER 2. Fire Development Services Captain
Contact Phone	(213) 482-6936
Contact Email	1. Hanil.Malki@lacity.org 2. Dwayne.Laurent@Lacity.org
Project Dates	7/2014 – Till Date
How is this reference particularly relevant to this project?	3Di works with LAFD Development Services division in a Maintain, Operate and Develop mode of the program that is responsible for their permit issuances and field inspections. This is a long running project of over 4 years. 3Di teams work with the LAFD MIS and business teams on a SCRUM based 3 week SPRINT cycle for this program. The application is very relevant to this RFP response as it has multiple components that have immediate re-use potential for this RFP. • Multi-functional role-based project scheduler that is used for to schedule, assign inspections across the inspector community • iOS Field device app enabling inspectors to perform inspections easier and report actual hours spent in the activity • Ability to customize and enhance the scheduler to include resource management for multiple FIRE projects • Ability to integrate the actual project task hours into CRM based HR/Payroll systems
Reference #2	
Client Name	**Los Angeles Fire Department Brush Clearance Unit**
Project Summary	Year round compliance program taking care of Fire prevention services across the LAFD brush inventory.
Contact Name	James Hayden
Contact Title	Fire Battalion Chief
Contact Phone	+1 213-202-9956

Contact Email	James.Hayden@lacity.org
Project Dates	8/2016 – Current

How is this reference particularly relevant to this project?	• 3Di Manages the VMS3 Program for the LAFD Brush unit. This program is responsible for all preventive inspection activities done across the LAFD very high fire zone brush inventory. All Year-round compliance is of critical importance to contain any occurrences of brush fires.
	  • VMS3 support across multiple platforms and devices on Windows and iOS
	  • Ability to work offline without internet connectivity and upload data when connectivity is restored.
	  • Resource and personnel management with the ability to dynamically assign areas, teams to various fire team leads and captains.
	  • Integration with the city-wide FMS to invoice end property owners for non-compliances year-round and pay contractor invoices for clearances.

1.8.2 Secondary References

Glendale Fire Department
Jeremy Cawn
(818) 548-4810
Utilizing 3Di's Community Application Platform (CAP) that is being proposed for this RFP, 3Di Prevent WUI solution provides a highly effective solution for inspecting and managing defensible space in this community. Fire prevention personnel utilize iPads with the 3Di Prevent mobile application to perform field inspections quickly. That gathered information is seamlessly integrated with the management portal that allows the administration to effectively process violations, update/maintain codes and parcels, and provide real-time, accurate reporting for data driven decision-making. The same portal provides citizens with an effective fire department interface to register complaints, request services, and find relevant fire prevention information.

Hayward Fire Department
Norma Marples
(510) 583-4930
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La Habra Heights Fire Department
Robert Montaghami
(562) 694-8283 Ext. 328
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1.9 Proposal Deviation from RFP

To the best of our understanding, there are NO deviations in our proposal from the requirements presented in the RFP.

2. Section 2: Functional Requirements

2.1 In-Scope Inspection Types

Types of Inspection	Inspectors	Annual Inspections	In Scope
Fire Stations	**1,000***	**169,205**	
Hydrant Inspections		70,000	Y
R1R2		54,350	Y
Occupancy		44,855	Y
Commercial & Industrial	**25**	**8,458**	
Central Industrial Unit	8	2,305	Y
Harbor Industrial Unit	4	2,264	Y
Valley Industrial Unit	6	2,255	Y
West Industrial Unit	4	1,300	Y
Legal Cannabis Unit	3	334	Y
Public Safety	**49**	**10,707**	
Film Unit	5	483	Y
Institutions Unit	5	914	Y
Public Assemblage Unit	14	2,295	Y
Schools & Churches Unit	8	3,540	Y
Valley Public Safety	6	2,772	Y
High- and Low- Rise Unit	11	703	Y
Other Fire Inspections	**25**	**5,420**	
Hydrant Access Plans Review	5	4,450	Y
Research Unit	3	350	Y
Legal Unit	7	100	Y
Illegal Cannabis Unit	10	520	Y
Contractors - Brycer Reg 4	**800+**	**25,500**	Y

* These inspections are done by LAFD members' on-duty at each of the 106 fire stations
+ These inspections are done by contractors using the Brycer system

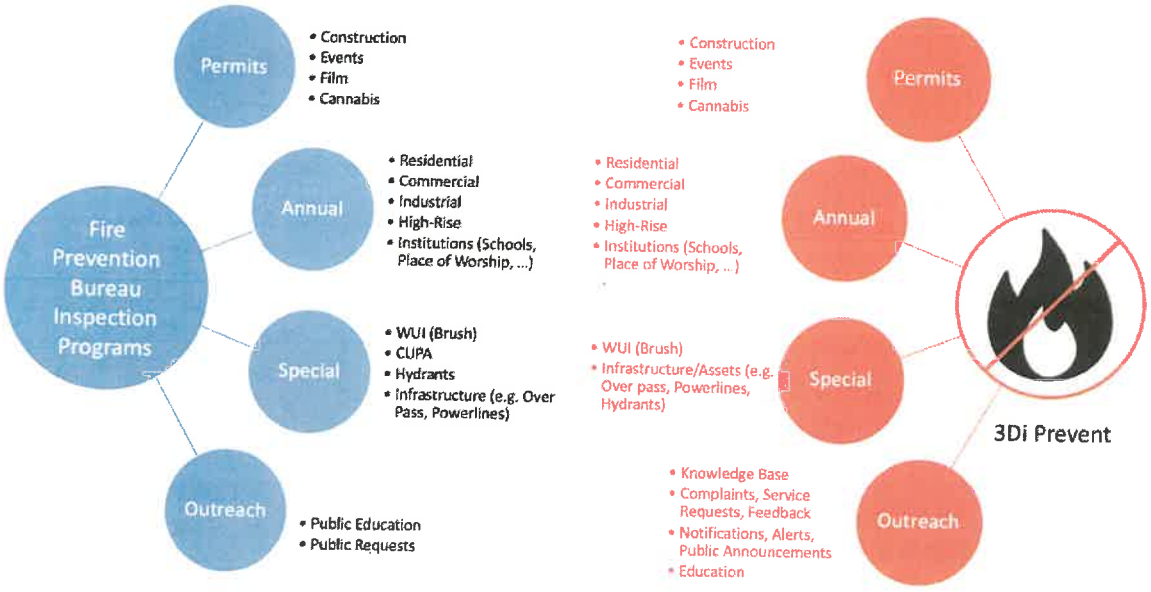
3Di will use 3Di Prevent, our product for Fire Inspection Management to implement all the inspection types and corresponding workflows mentioned in the table above. The product and process are explained in following two parts.

(a) High-level description of 3Di Prevent
(b) Description of the 3Di Prevent implementation process

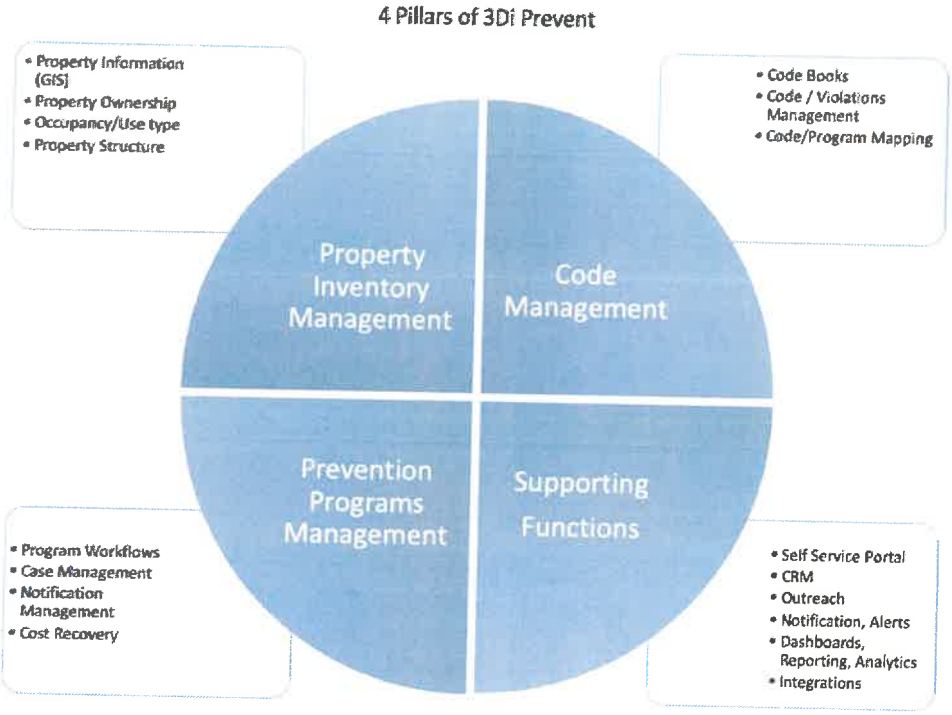
(a) Description of 3Di Prevent

3Di's Fire Inspection Management System is called 3Di Prevent. 3Di Prevent was developed using best practices for code driven inspection processes and structure of a Fire Prevention Bureau (such as LAFD).

The Fire Prevention Bureaus of large Fire Department such as the Los Angeles Fire Department typically have four types of inspections functions – Permitting related inspections, Annual inspections, Special inspections and Outreach. Permit related inspections refer to inspection for constructions, events, film, cannabis, etc. where a permit may be required by the applicant. Annual inspections refer to any inspection program related to regular inspections required for code compliance such as Residential (R1, R2), Commercial, Industrial, High-Rise, Institutions (Schools, Places of Worship, etc.). Special inspections refer to inspections that may be regional or specific to a fire department such as WUI (Brush), CUPA, Infrastructure (e.g. Overpass, Powerlines, etc.). Finally, Outreach related to Fire inspections is an extremely important function of any Fire Prevention Bureau. Outreach includes managing complaints, notifications, announcements, service requests, education, training, etc. Following diagram shows how the 3Di Prevent solution is designed to exactly fit the needs of LAFD's Fire Prevention Bureau for a comprehensive Fire Inspection Management System.



There are four pillars of 3Di Prevent system as show in the diagram below.



Property Inventory Management Module

All inspections are with respect to some asset. There are two types of assets:

(1) Mobile Assets (Trucks, equipment, machinery, etc.)
(2) Immobile Assets
    a. Properties (land parcels, structures, etc.)
    b. Free standing assets (Hydrant, transmission tower, etc.)

3Di Prevent can represent all types of assets. All inspections are associated with at least one asset. Inspection types are referred to as inspection case types (or case types). An asset can have more than one type of inspection type associated with it. Property inventory management (or Asset Management) is at the heart of 3Di Prevent. Deployment of 3Di Prevent begins with configuration and uploading of the Property/Asset Inventory of the Fire Department. Property Inventory is usually provided by the fire department or bureau of engineering in the city. We will discuss Property Inventory management in a later section.

Code Management Module

All inspection consists of a list of items that need to comply to codes. Noncompliance to a code is referred to as a violation. Another key feature of 3Di Prevent is Code Management Module. 3Di Prevent Code

Management allows any type and any number of code books to be created and managed. We will discuss Code Management in detail in a later section. Code Management Modules must be configured for each Inspection Program (Inspection Type).

Inspection Program Management Module

A fire department may have several different Inspection Programs (Inspection Types) such as high-rise inspection, public safety inspections, etc.. 3Di Prevent's Inspection Program Management module allows each inspection program to be configured differently in terms of inspection assets, inspection forms, inspection code, inspection workflows, notices, notification workflow, cost recovery, and reporting. Configuring the Inspection Programs on 3Di Prevent is the main implementation activity for deployment of 3Di Prevent.

Support Modules

There are number common functionalities that are needed in all inspection programs. Following are some of the other modules of 3Di Prevent.

- CRM (Community Relationship Management) for managing information & activities of stakeholders (property owners, property occupants, fire department staff, vendors, partner agencies)
- Service Request Management (SRM)
- Work Order Management
- Property Inventory & Asset Management
- Code Book Management
- Case Management
- Document Management
- Portal for Self Service
- Mobile App for inspections and field work
- Notice Generation
- Notifications & Alerts
- Cost Recovery - Billing & Payments
- Configurable workflows to adapt the systems to each fire department's unique business processes
- Reporting & Analytics
- Data Import & Export
- Integration APIs
- Integration support for GIS, IDM, external databases, other systems of record
- Data Security Framework (CJIS Compliant, HIPAA, PCI)

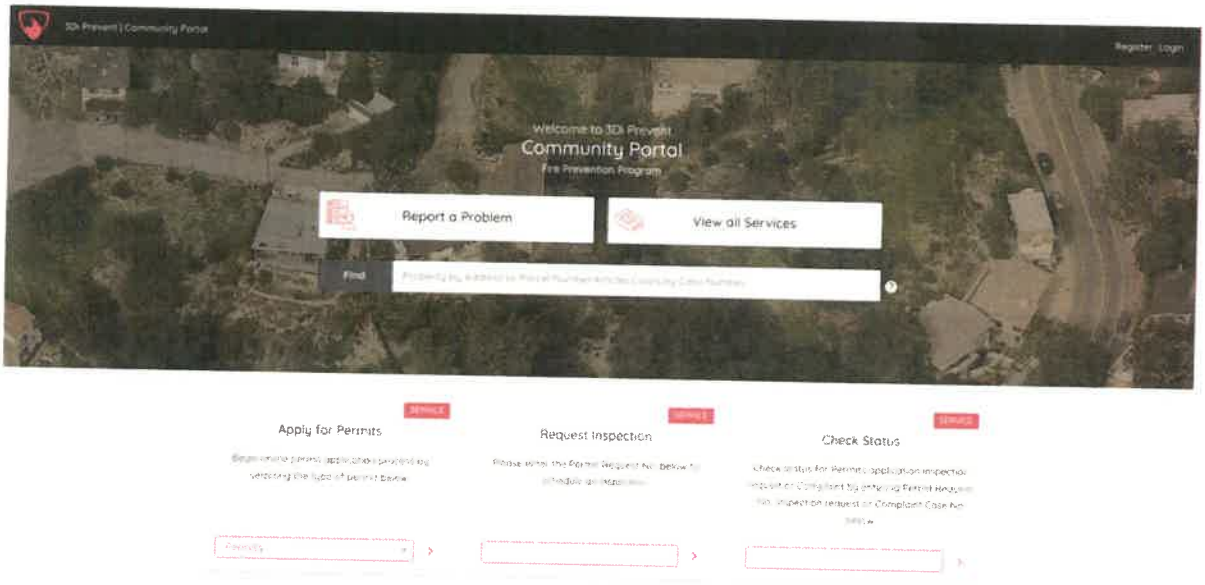
There are three channels to access the 3Di Prevent solution: The Mobile App, The Community Portal, and Integration APIs.

Mobile App is used for:

- Conducting Inspections related field work (issues notices, etc.)
- Accessing property inventory, case data and code books in the field.

Community Portal is used for:

- Fire Prevention Department Web Portal
- Personalized Role Based Access by - anytime, anywhere, anyone including for FD Staff, Partner Agencies, Vendors, Owners and the Customers
- Property Inventory Management
- Code Management
- Prevention Programs Management
- Dashboards, Reports & Analytics
- Outreach features (Complaints, Service Requests, Notifications, Alerts, FAQs, Articles, Social Media)



- Community Portal

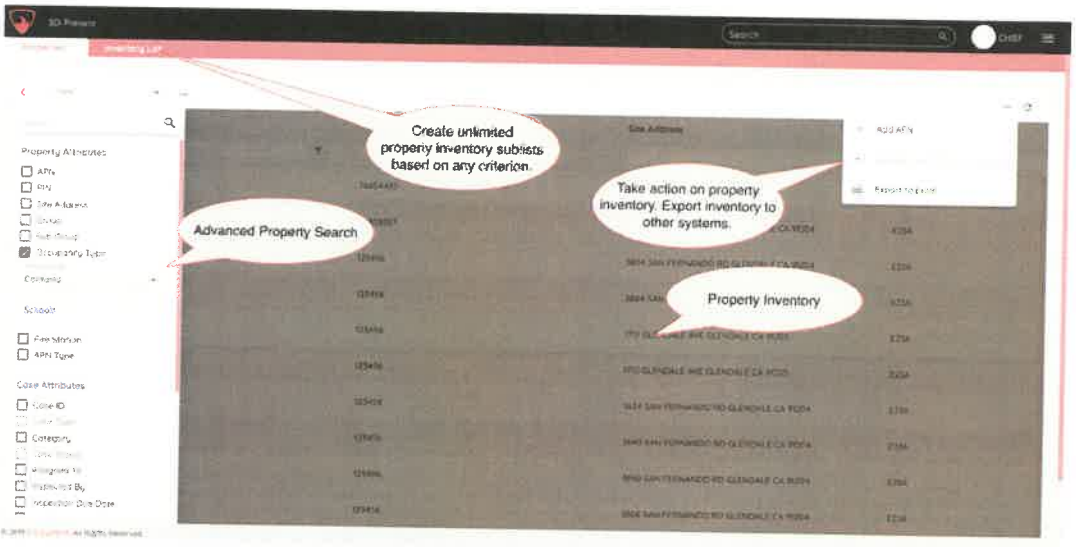
(b) Description of the 3Di Prevent Implementation Process

3Di Prevent implementation process is different from a traditional custom software development process at it primarily involves system configuration as opposed to software development. The system is configured to the needs of each customer. The configuration involves following components:

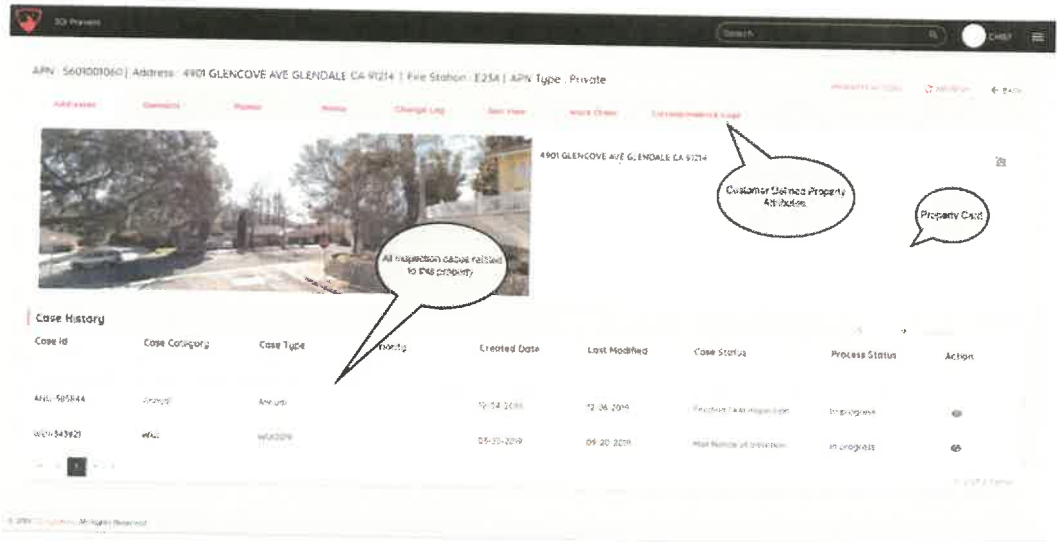
(1) Configuration and uploading of Property & Asset Inventory

a. Property & Asset Inventory modeling including attribute analysis
b. GIS Integration including uploading of relevant asset layers
c. Property Classification (occupancy type, inspection program types)

We will work with LAFD to implement an property inventory model that works across all different inspection programs and a property inventory update methodology that allows LAFD to keep the Property Inventory current. Currently, 3Di has implemented a monthly refresh process for LAFD for VMS3 and R1R2 Property Inventory. We can use the same process for all modules.



Property Inventory Management System



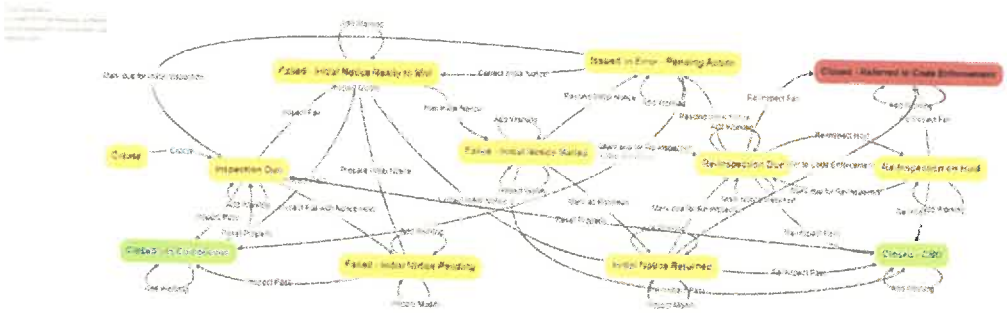
Property Detail Card show Property information and Inspection Case History

(2) Configuration of Codes
   a. Configuring Code Management Module
   b. Applicable Code Sections

We will work with LAFD to identify the applicable code sections and upload them to the system. Codes must be defined for each inspection program.

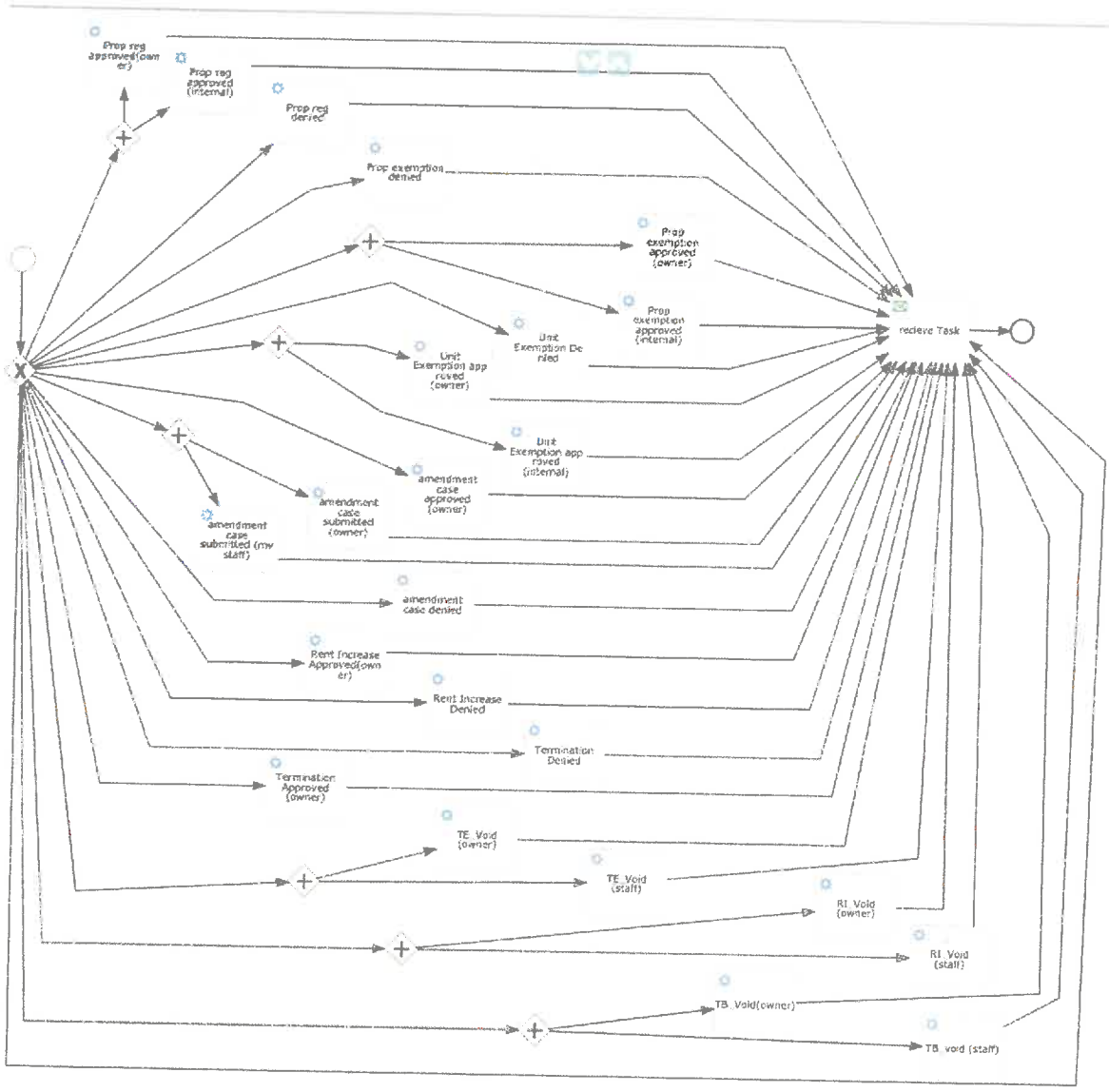
(3) Configuration of Inspections Programs. For each inspection program we will work with the subject matter experts to configure the system for:
   a. Relevant codes
   b. Violations
   c. Notices
   d. Cost recovery model & fee structure (where applicable)
   e. Inspection Case Details View (screen)
   f. Inspection Workflow

Next we describe how requirements are gathered and the system is configured for inspection type. During the requirements and configuration phase we work with each of the inspection type's stake holders (inspectors, unit captain, etc.) to gather the requirements. The requirements are gathered using tools such as workflow diagrams, business process diagrams, worksheets and notes. Following diagram shows a typical inspection workflow business rule diagram.



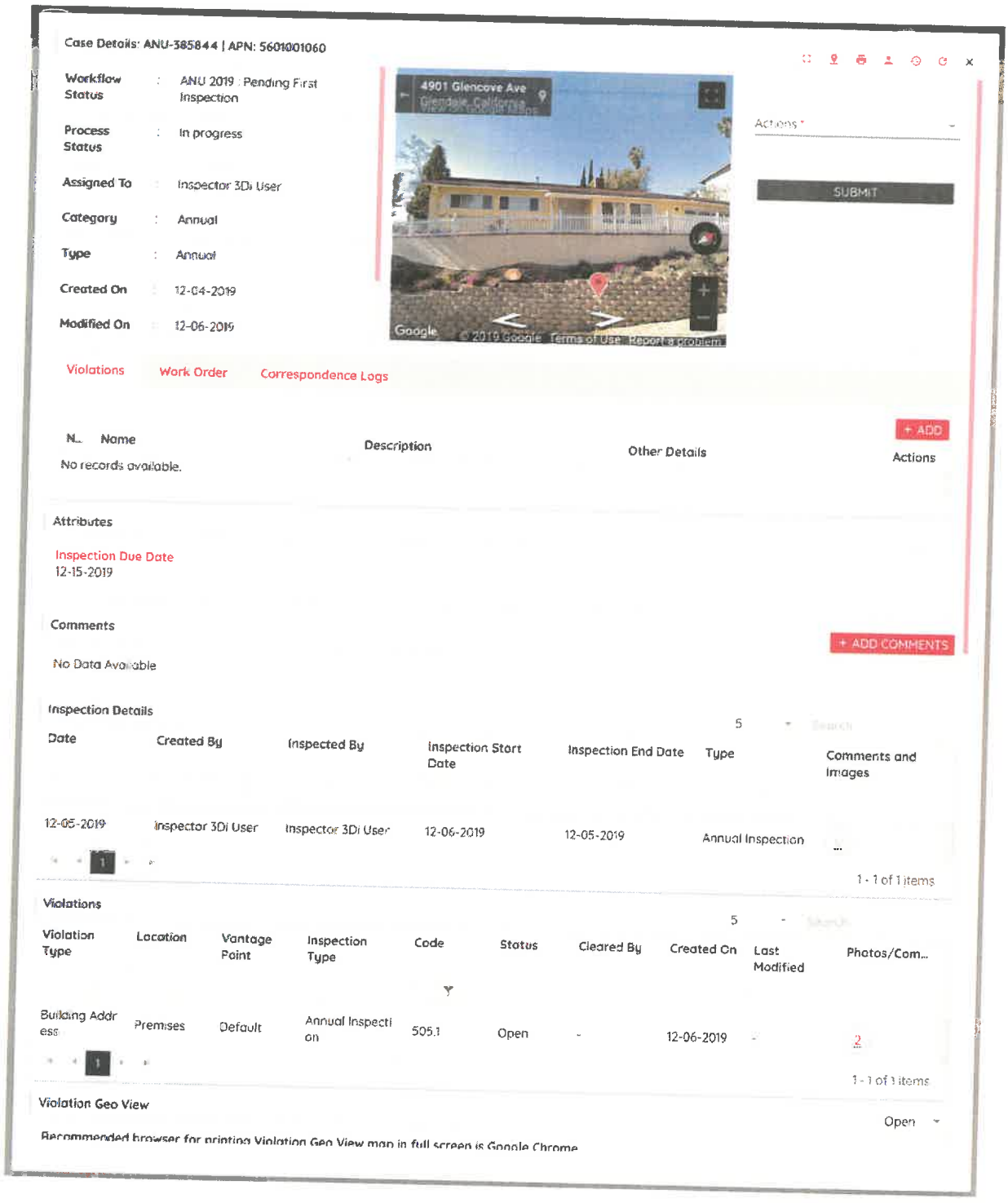
Inspection Workflow Diagram

Unlike a typical software development project, the business workflows are not converted to software program but configured as workflows in the 3Di Prevent Workflow Engine. This shortens the implementation time by orders of magnitude and provides immediate feedback to the users. Following diagram shows a business process sending notification emails to customers implemented in 3Di Prevent.

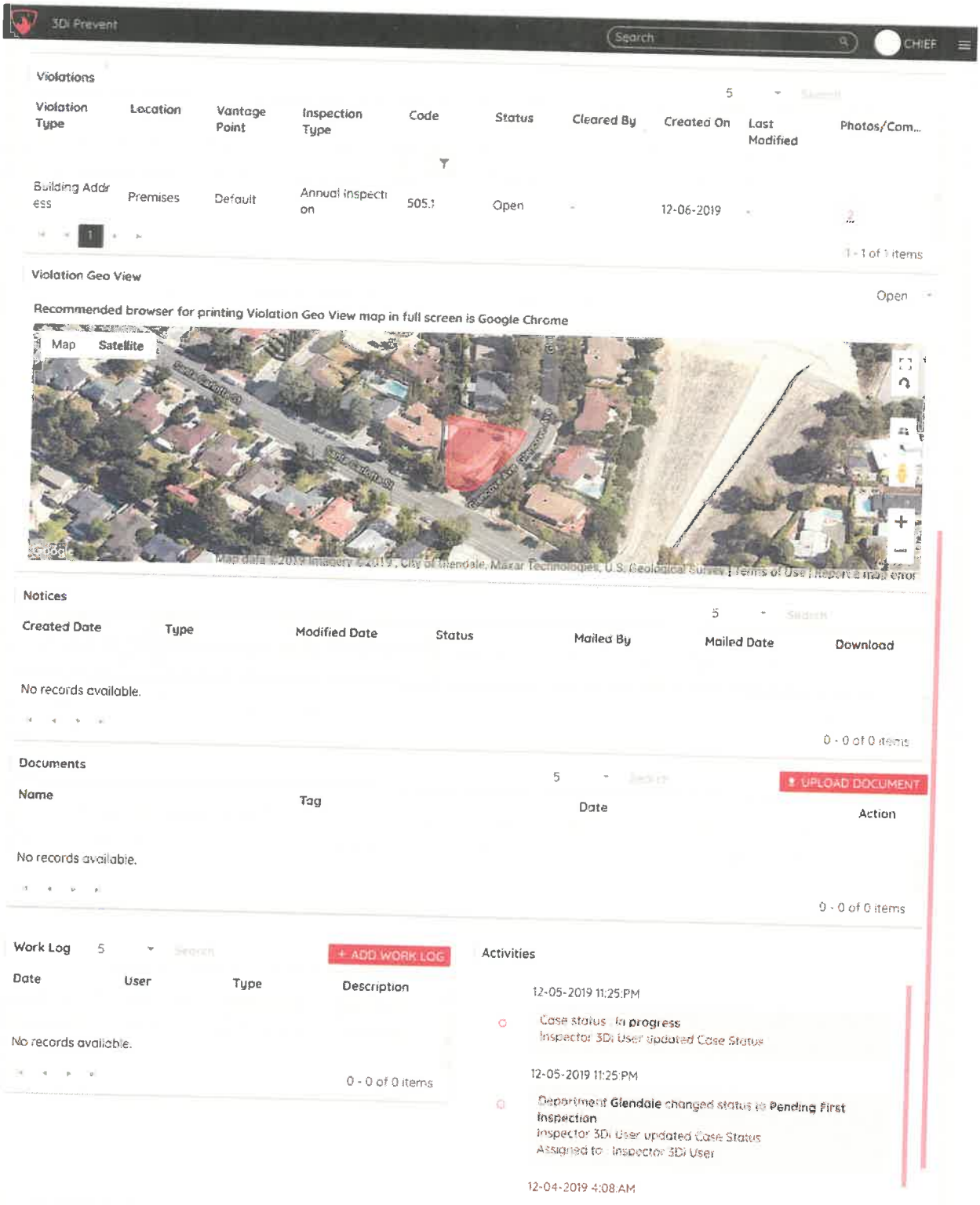


If the business rules change the business process implementation can also be easily changed without a lot of implementation delay or cost. This is one of the central features of the design of 3Di Prevent.

Following two images show a typical Case Detail View. Case Detail View can be configured based on the role of the user. For instance, the details shown to the property owner may be different from what the LAFD inspector may be able to see.



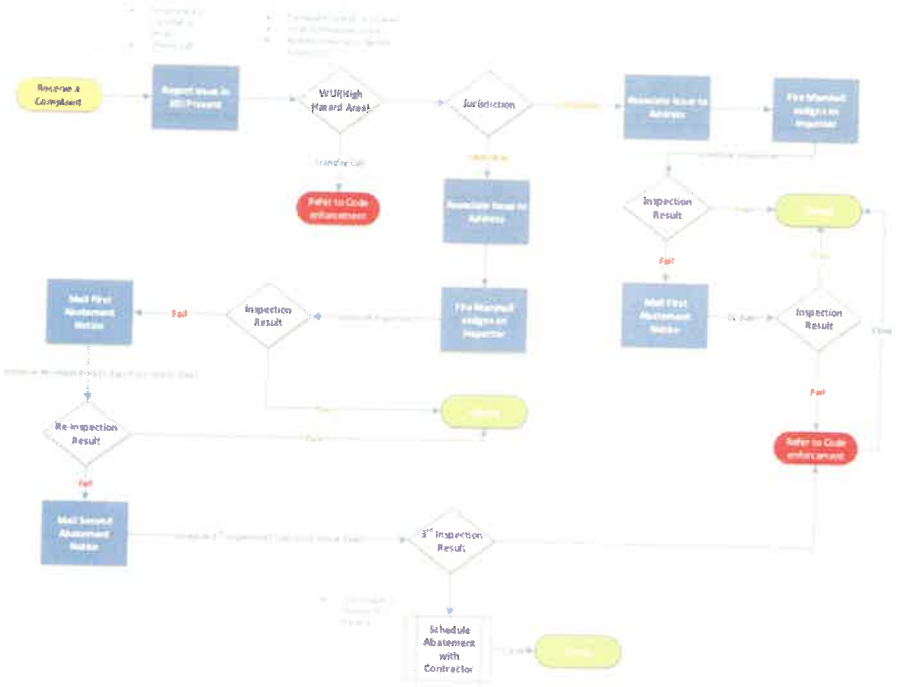
Inspection Case Details View (Page 1 of 2)



Inspection Case Details View (Page 2 of 2)

(4) Configuration of Complaints and Services Requests
   a. Type of complaints
   b. Complaints to inspection mapping (where applicable)
   c. Service Requests to inspection mapping (where applicable)
   d. Cost recovery (where applicable)

Following image shows workflow for a typical complaint or a service request. It easy and quick to configure new types of complaints and services requests. A service requests can also be enabled and disabled at any time, for example there may be special complaint type that is enabled during Brush Fire season or during holidays or Santa Ana winds (to report downed power lines).



Business Rules/Business Process for Complaint/Service Request

(5) Configuration of users, user groups, roles, etc. (inspectors, captains, vendors, etc.)
   a. Users
   b. User Roles (inspector, captain, chief, vendors, property owner, tenant, etc.)
   c. User authentication methods (TFA, IDM federation, etc.)

(6) Portal Configuration
   a. Portal User Interface (UI) Design
   b. Portal dashboards by roles
   c. Portal functions by roles

(7) Reporting & Analytics
   a. Dashboards by role

b. Fixed Reports by role
c. Ad hoc Report tool access by role
d. Integration with third party reporting systems (Microsoft BI, others) through API or data export.

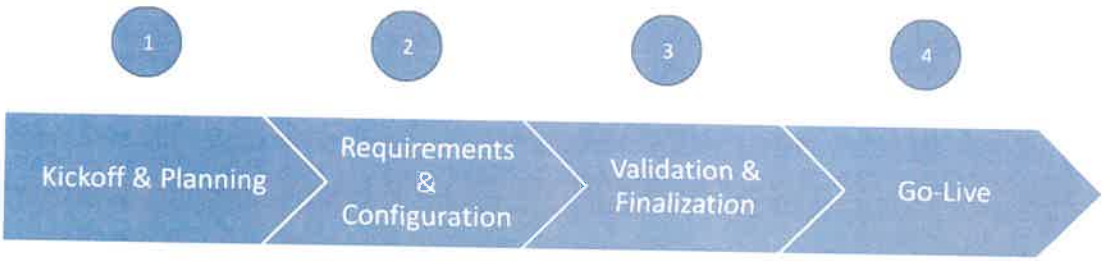
(8) Mobile Application Configuration
   a. User Interface (UI) configuration
   b. Workflows
   c. Authentication (MFA etc.)
   d. Notifications

(9) Custom Development. Sometimes, custom development may be required to change some part of 3Di Prevent or some other system to complete the implementation.

(10) Systems Integrations
   a. GIS
   b. Identity Management
   c. Reporting
   d. Other systems (Custom)

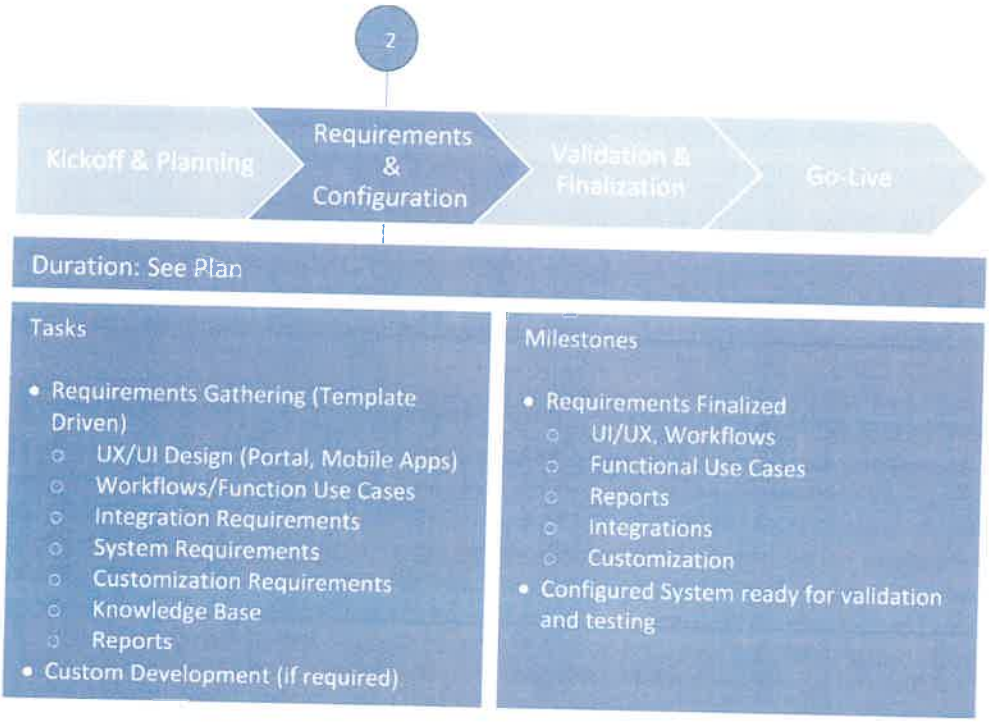
(11) Data Migration. In some instances, it may be necessary to migrate the data to the new system. The migration plan depends on type of data, future requirements for past cases/data and availability of data.

Typically, system deployment is done in following 4 phases:

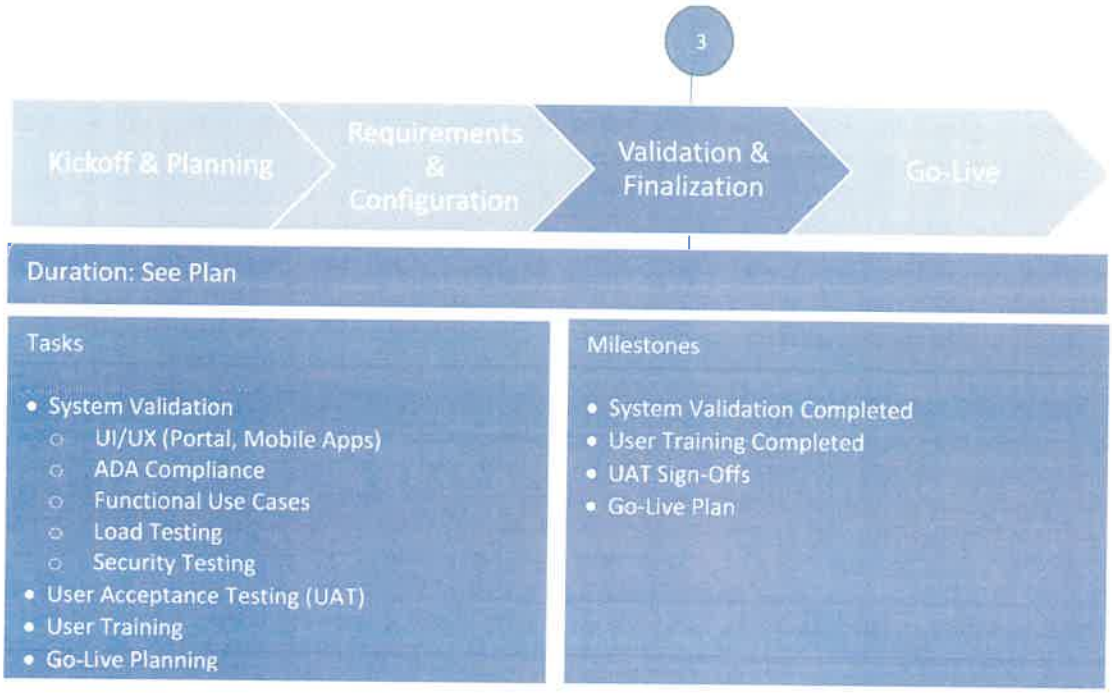


Phase 1: Kickoff & Planning

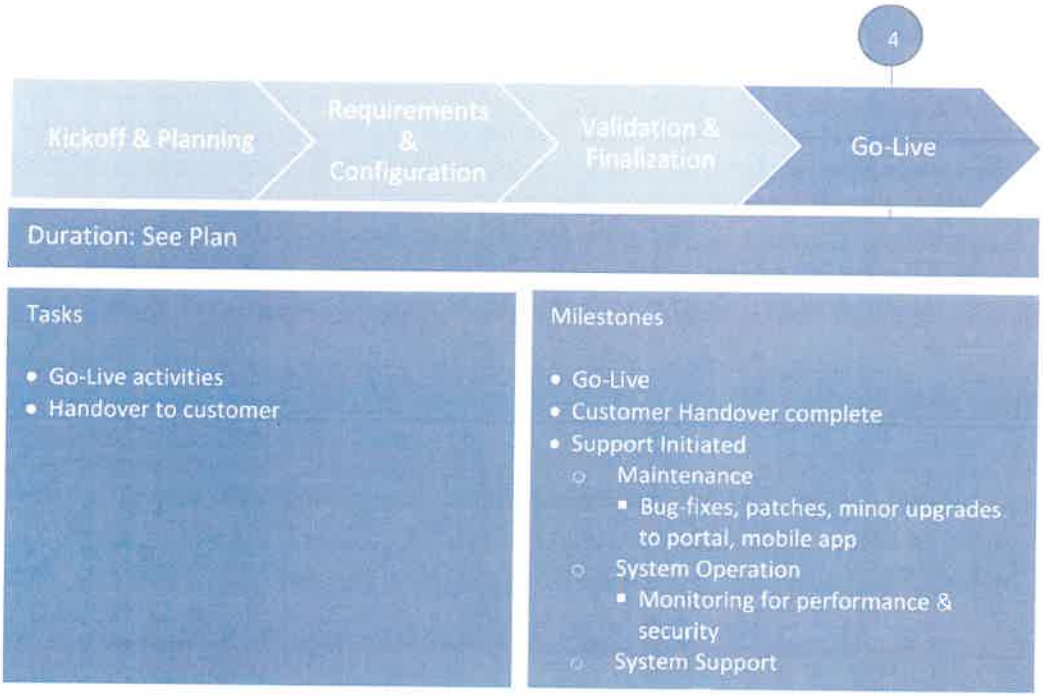
Phase 2: Requirements (Discovery) & Configuration



Phase 3: Validation & Finalization



Phase 4: Go-Live & Hand over



Ordinarily, in a smaller project, where there are fewer inspection programs (types), or there are no existing inspections systems to be replaced and fewer integrations (interfaces) to be implemented, all of the inspections program can be implemented in one 4 phase implementation cycle. We believe such approach will be risky for LAFD implementation because:

- Large number of different inspections programs (types)
- Large number of inspection units to be trained
- Migration from number of existing systems required
- Integration with a number of city and internal systems required

We are proposing an incremental plan that still follows our four-phase implementation approach but in four stages (Implementation Cycles). The high-level structure of the plan will be as follows:

1. High Level Kick-off
2. Common implementation activities
    a. General Requirements
    b. Base System Installation
    c. Common Integrations
3. Cycle 1: Fire Station Inspections
    a. Requirements & Configuration
    b. Validation
    c. Go Live with Fire Station Inspections
4. Cycle 2: Public Safety Inspections
    a. Requirements & Configuration
    b. Validation
    c. Go Live with Public Safety Inspections
5. Cycle 3: Commercial & Industrial Inspections
    a. Requirements & Configuration
    b. Validation
    c. Go Live with Commercial & Industrial Inspections
6. Cycle 4: Other Inspections
    a. Requirements & Configuration
    b. Validation
    c. Go Live with Other Inspections

A detailed work project plan is presented later in this proposal. Next, we discuss specific inspection types and any special treatment or variation to the process describe above will be necessary for each inspection type.

2.1.1 LAFD FPB Business Units

N/A

2.1.2 Local Fire Station Inspections

3Di Prevent's standard annual inspection process will be a good template to base the implementation of commercial & Industrial building inspections.

Any Inspection cycles can be accommodated in 3Di's Annual Inspections. 3Di Annual Inspections supports checklist-based inspections for all types of occupancy codes.

The annual inventory can be assigned by fire station, a group of inspector or individual inspectors. When the inspectors log into the mobile inspection units, the work queue will show the inspections that have been assigned to them. The inspector can research the properties on the portal or on the mobile app.

2.1.3 Hydrant and Access Units

3Di Prevent has an out of the box inspection template for Hydrant and other such fixed asset inspection. City would need to provide a GIS layer with Hydrant and Access Unit data.

The system can be configured to automatically notify LADWP for repair and replacements of defective hydrants. Alternately, the system can be configured with a role for LADWP staff to access the inspection details directly from the LAFD FIMS and update when the repair/replacement work is completed.

The system can show map view with location of hydrants for planning purposes. The views would have to be defined during implementation.

2.1.4 Residential Apartment Inspections (R1/R2)

The current system being used to conduct R1/R2 inspections was developed by 3Di. 3Di is also currently, maintaining, operating and supporting the R1/R2 application. We can easily transition the current R1/R2 inspections to the new FIMS system including the past inspection data. The inspection inventory can be assigned to any inspection unit including Fire Station inspectors.

2.1.5 Commercial & Industrial

As mentioned above the Commercial & Industrial's inspections can be implemented using 3Di's annual inspection template.

This unit is also responsible for several complex inspections. 3Di Prevent can accommodate different inspection workflows for each inspection process including that for Oil Well inspection.

The Cannabis Unit's inspection will require integration with the system that generates the business licenses. 3Di Prevent will implement an integration interface for fetching the new business licensing information.

2.1.6 Public Safety

Public Safety inspections can be divided into two types of inspections. First, safety code compliance for Churches, schools, etc., and, second, inspection for public assemblage (street events, street festivals, etc.)

The first type of inspection can be implemented using 3Di's standard annual inspection template with some modification for each occupancy type.

The second type of inspection may require permits and cost recovery. If the permitting is done by Bureaus of Street Services, 3Di can integrate with BOSS's system to receive information about permits. Since street events, political rallies, street festivals do not have fixed property inventory associated with inspection, the inspection process is handled differently. The inspection in this case is associated with the event. 3Di Prevent supports such inspections.

We can configure role-based access to FIMS for other city agencies that need the data for Public Safety inspections such as LAUSD and BOSS.

The public portal of 3Di Prevent can also be used for publishing information about Public Safety and upcoming events including exit routes and fire safety information for events.

2.1.7 Chief Regulation 4

Currently all Chief Reg 4 inspections are stored in Brycer's Compliance Engine system. 3Di has been in communication with Brycer about integration of LAFD property inventory with Brycer's Compliance Engine for (a) keeping the inventory in Brycer's Compliane current and (b) importing Brycer's inspection data from FIMS.

2.1.8 Research Unit

We will configure a special role for the Research Unit users to access the FIMS system. The research unit will be able to use the system to generate reports, analytics and help in keeping up the code books, training material etc. on the 3Di Prevent Portal. 3Di Prevent Portal can also be used as an intranet portal by LAFD to manage internal sharing of documents, procedures, policies, training material, etc.

2.1.9 Legal Unit

We will configure a special role for the Legal Unit to be able to access the cases that have escalated to code enforcement and require processing of legal packets (F-290). We can also extend the case management such that the outcomes of prosecution and/or hearing can be attached to the case for future reference. This way, when the property is accessed in the future for any reason, all related case data including the prosecution/hearing outcomes would be available for reference.

2.1.10 Illegal Cannabis Unit

Illegal Cannabis Unit is responsible for identification, enforcement and abatement of all illegal Cannabis operations in the City of Los Angles. The configuration of 3Di Prevent for the Illegal Cannabis Unit will require:

- Setting up of complaints so the residents can call or create complaints online on the portal/mobile phone regarding illegal cannabis unit. 3Di Prevent includes complaint module and Cannabis Complaint is one of the out the box complaints configurations.
- Integrate with myLA311 to receive any Cannabis related service requests received by 311. 3Di Developed, implemented and is currently maintaining the LA City 311 systems. We can easily integrated myLA311 Service requests related to Cannabis complaints with 3Di Prevent.
- Implement workflow for assigning complaints to field units to investigate the complaints using field mobile unit. If the complaint is valid, convert the complaint into a code enforcement case.
- Generate necessary notifications and assign the case to Legal Unit for enforcement.

Most of the processes listed above are already support in 3Di Prevent. The existing processes will be modified with the input from the Illegal Cannabis Unit and integration with myLA311 will be implemented.

2.2 Out-of-Scope Inspection Types

Types of Inspection	Number of Inspectors	Number of Inspections
CUPA	29	9,652
Brush Clearance Unit	15	155,000
Fire Development Services	16	9,325

2.2.1 CUPA

Currently CUPA is business processes are managed using a third-party solution. In the past 3Di has explored the possibility of integration with CUPA system. Unfortunately, CUPA system did not provide APIs for such integration. Following are some ways in which 3Di Prevent may integrate with CUPA business processes.

- It should be possible to attach CUPA status/inspection reports/billing data with the property inventory in 3Di Prevent (FIMS) in the same way that we have proposed integration for other third-party systems such as Brycer's Compliance Engine. This would allow LAFD to view all data related to the facilities that fall under CUPA in one place.
- If CUPA currently does not employ any automation with respect to inspections related to CUPA compliance, 3Di can implement CUPA inspections in 3Di Prevent like any other inspection type. The reports can then be kept in FIMS as wells as CUPA.
- If APIs can be obtained for the current CUPA system, 3Di proposes data integration between the CUPA system and 3Di Prevent/FIMS.

2.2.2 Brush Clearance

The current Vegetation Management System (VMS3) was developed by 3Di. It is also currently maintained, operated and supported by 3Di as a SaaS solution. There are two options available going forward.

- Integrate the current VMS3 with the new FIMS (3Di Prevent) so that the property inventory is unified. The systems would continue to work separately but the property inventory and data sharing would allow unified reporting.
- Migrate the VMS3 to 3Di Prevent's Brush (WUI) Inspection Module. 3Di Prevent's WUI module is essentially the same as VMS3. It would be relatively simple for 3Di to Migrate the VMS3 to 3Di Prevent WUI module. The end users will see very minor changes in field application but the can avail of many new features. The total cost of ownership will reduce for LAFD. There will be only one field application for all inspection types. LAFD would be able to benefit from the new enhancements to 3Di Prevent WUI Module without additional cost of replicating such functions in VMS3.

2.2.3 Fire Development Services

The current system being used by LAFD FDSS, known as FIMS, was developed by 3Di with the help of LAFD FDSS staff. Currently FIMS capabilities are not included in 3Di Prevent. Going forward there are couple of options for integrating the current FIMS with 3Di Prevent (new FIMS).

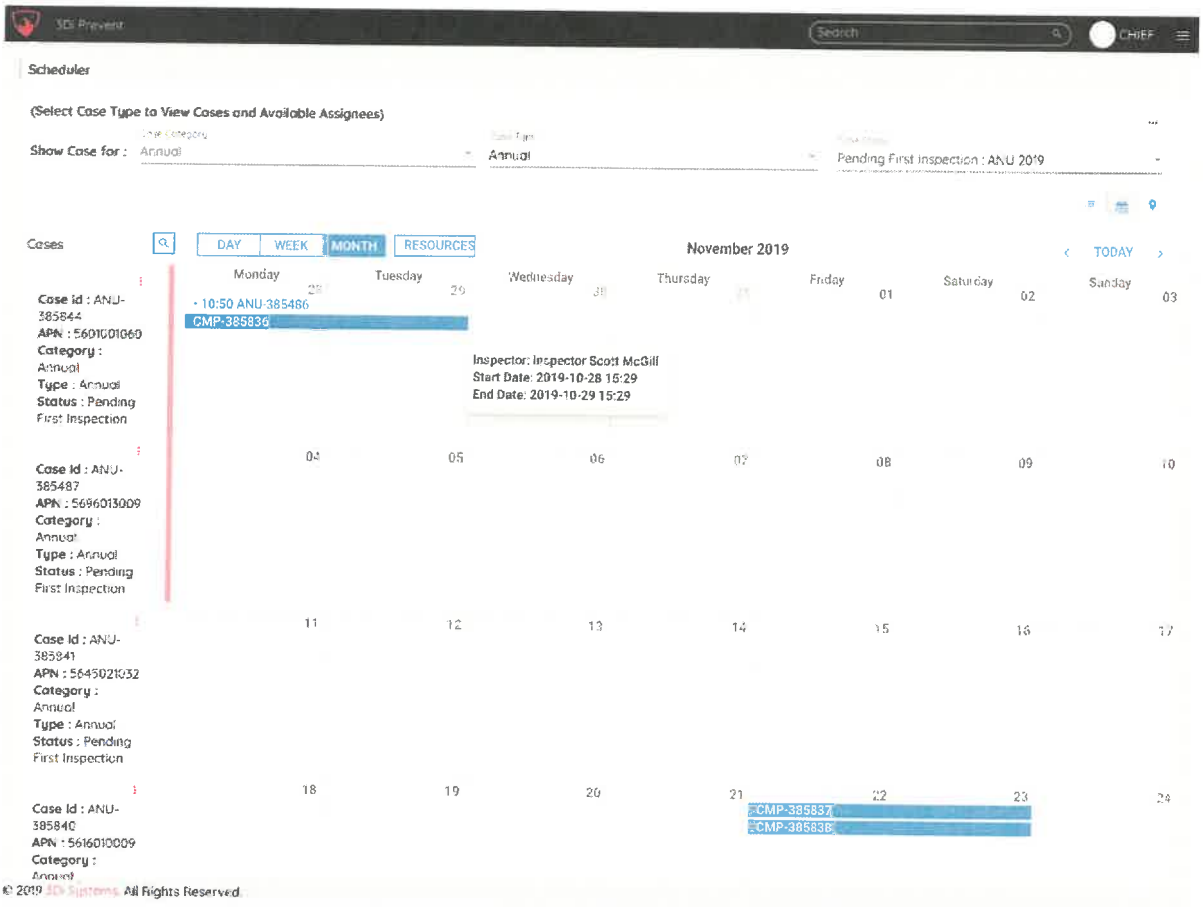
- Integrate the two systems through APIs for common property inventory allowing integrated reporting, sharing of inspection data and customer self-service portal.
- If FDSS decides to use LADBS Plan Check system, 3Di can integrate 3Di Prevent with the LADBS PCIS and Plan Check systems. 3Di developed several systems for LADBS including ePermitting and first version of plan check. 3Di has extensive experience with LADBS PCIS system.

2.3 Inspector Scheduling

Inspection Assignment and Scheluding are integrated functionalities of 3Di Prevent Fire Inspection Management System. Following are some of the features of the 3Di Prevent's Inspection Sheduler

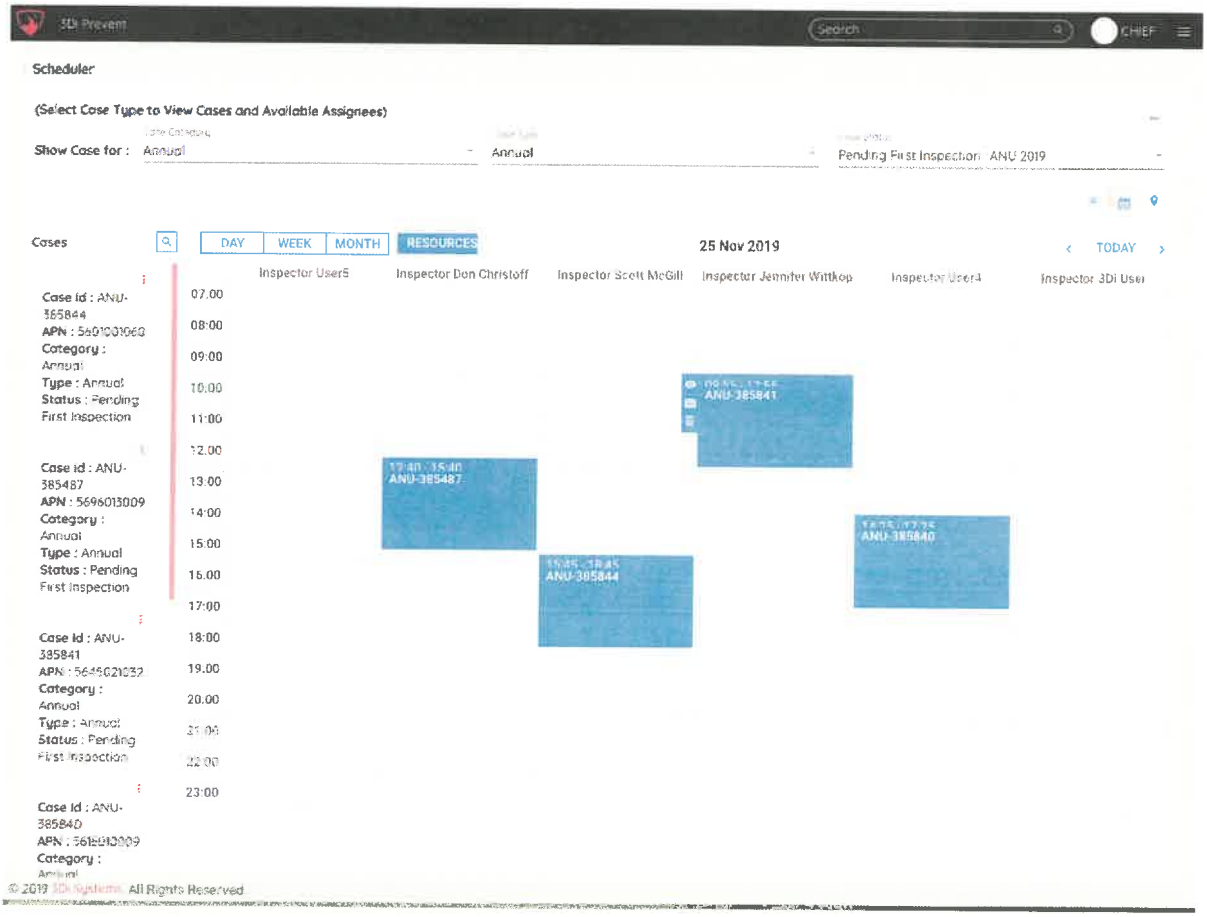
- Any inspection (case) can be assigned to or more inspectors with or without a scheduled appointment.
- The inspection can be scheduled by
    - The Inspector
    - The property owner
    - The Supervisor
- The inspection scheduling supports workflows including declining a scheduled inspection, selecting an inspection time slot, assigning a scheduled inspection from one inspector to another inspector, scheduling enabled only if one or more conditions are met (e.g. payment for inspection is complete).
- The inspection scheduler can be integrated with calendars using CALDAV protocol. (Outlook, Google Calendar)
- The inspection scheduler can send Calendar Notifications in standard calendar event format that can be detected by email clients as calendar events.

Following image shows the screen where an inspector or a supervisor can view, modify or create a new calendar event for an inspector.



Scheduler View by Month. The inspection cases can be dragged and dropped into the calendar to assign to the inspector.

Following image shows inspections



Scheduler View by Inspectors. The inspection cases can be dragged and dropped into the calendar to assign to any inspector. Each inspector's calendar is visible in one screen.

3Di has successfully implemented Scheduler for LAFD FIMS system being used by FDSS. The scheduler is used for scheduling inspectors as well as used by the contractors and property owners to select open time slots for scheduling (requesting) inspections.

3Di has successfully implemented Scheduler for the Housing and Community Investment Department of Los Angeles (HCIDLA) that also allows group scheduling.

2.4 Data Collection and Compliance with Required Fire Codes

2.4.1 Data Collection Process

The proposed solution, 3Di Prevent, uses form-based data collection process. The forms allow any data type including numbers, text and images. The data input format can be structured or unstructured. This allows 3Di Prevent to convert any current data collection form to be adapted to the digital data collection format used by the 3Di Prevent inspection system. The user interface uses a flexible form builder allowing any data collection form to be built. The form includes data validation, data confirmation and data collection logic that allows conditional form elements. Data is stored in form of attributes for a specific violation. For example, if an inspection requires measurement of two dimensions and attachment of an image, the system allows creation of a data collection form for that includes to two fields for dimensions and ability to include and image in one of the other fields.

As explained in above paragraph, our solution uses a flexible form builder that enables implementation of virtually any data collection form. In the event that we cannot collect a particular data due to lack of capability of our system, we could undertake custom development of that feature in the system. We believe such situation is very unlikely.

As explained in above paragraph, in such situation we will extend the capability of our solution to capture the data elements required by the external standard.

Each data collection field can be configured for data validation. For example, if the data is a measurement that is in range 1-10, or it is a date, we can force the data to be validated upon collection and before saving to comply to the standard.

This is a constant challenge for data collection. One way to ensure that the data standards are maintained over time, the inspection type can be implemented with versions. For example, suppose that a particular data collection was required until Dec 31, 2018, then the data collection requirements were changed from Jan 1, 2019, through a new regulation. We can support multiple versions of an inspection type. Each version of the inspection type can have a period of validity. We are currently using this approach in Vegetation Management System (VMS3) Inspections. The inspections requirements have evolved since the system was first implemented in 2015. The inspections are stored by validity period. For example, we store 2016 Brush Inspections, 2017 Brush Inspections, etc. The data collections requirements have changed over the years for Brush inspections. Sometimes such changes can also impact reporting.

2.4.2 Code Data Update Process

Data collection needs will change over time. It will be the responsibility of LAFD to identify such changes and make 3Di aware of the new standards. 3Di will then evaluate how the changes will impact the data collection process and the process by which it will be incorporated in the 3Di Prevent system. Depending on the type of change, changes to the system can be made by LAFD or 3Di staff.

One of the aspects of 3Di's Ongoing Support model is that the fire department will have a fixed pool of hours each month called "Genie Support Hours" that may be used to make any modification to the system.

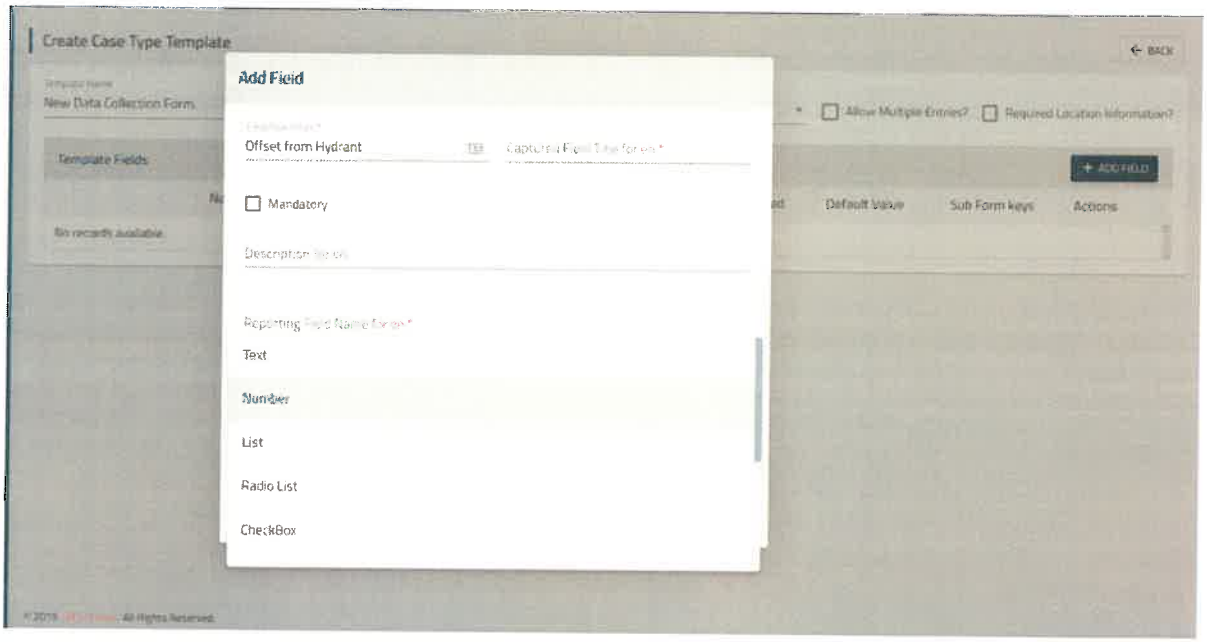
The use of Genie Hours is not restricted in any way with respect to the type of work. For changes to the system like data collection requirements, the Genie Support is the ideal mechanism. Genie support is included with monthly subscription.

3Di does not monitor the release of new data standards as each fire preventions bureau follows a different adoption timeline. Once a data standard is adopted, 3Di performs extensive testing of the system using test environments and target users. The system is released for general use only after the validation process is satisfactorily completed.

2.4.3 Custom Fields Management

3Di Prevent has a functionality where custom data collection forms can be supported. As a part of training and knowledge transfer 3Di will train LAFD staff to work with the form management system. The forms support most type of common data fields such as Text, Numbers, Lists, Radio List, Check Box, Toggles, Date, Slider and Rating. A form can be created using such fields. The system automatically creates necessary data structures to collect such date for a particular type of inspection.

Following image shows a field being added to a data collection form for an inspection type. All of the fields that are added to the inspection form are available as searchable/reportable attributes in the system.



2.4.4 Template/Form based Printing

When the requirement is to maintain a form in printable format, 3Di Prevent uses a different approach for creation of such forms. In this approach a fillable pdf template is first developed using an external tool. The form fields are created in the same way as described above. Next the pdf template is associated with the form. This approach ensures that the printable version of the form preserves the format exactly. This approach is also used for generating notices. The notices have to be all in the same format.

Developing such forms requires the use of PDF file creation tool like Adobe Acrobat. Currently, these types of data forms can only be created by 3Di team. LAFD can use the Genie Support for help with creation of such forms. In future we plan to add tools in the administration portal that will make the generation of such forms a simpler process.

Code Book Management Module

One of the key elements of the data collection is associating the data collection elements with a particular code issued by fire prevention governing body such as CFC or IFC.

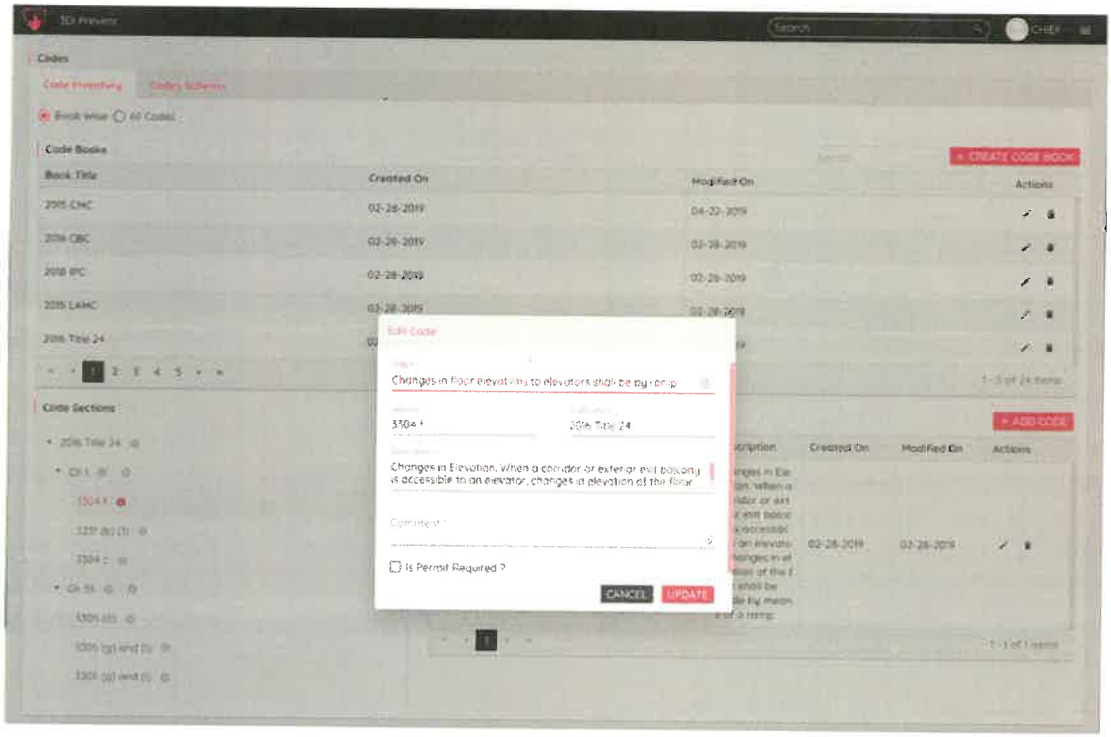
Code Book Management is one of four pillars in the design of the 3Di Prevent system. Following are importance concepts related to 3Di Prevent Code Management and its relationship to data collection.

- Each Inspection Type (e.g. Public Safety inspection of Schools) is based on a body of code defined by one or more fire prevention governing bodies such as California Fire Code (CFC) and the International Fire Code (IFC).
- The data collection is done against a specific code to determine if the is a particular code is being complied with. For instance, brush clearance offset around a fire hydrant should be more than 3 feet on all sides.
- When a data collection suggests that the code is not being met, it is referred to as a violation. Violation can trigger a notice or a fine or both in the inspection workflow process. It may also trigger automatic notifications to concerned parties. A code violation may also allow the inspector to attach evidence such as a photo or notes with the violation.

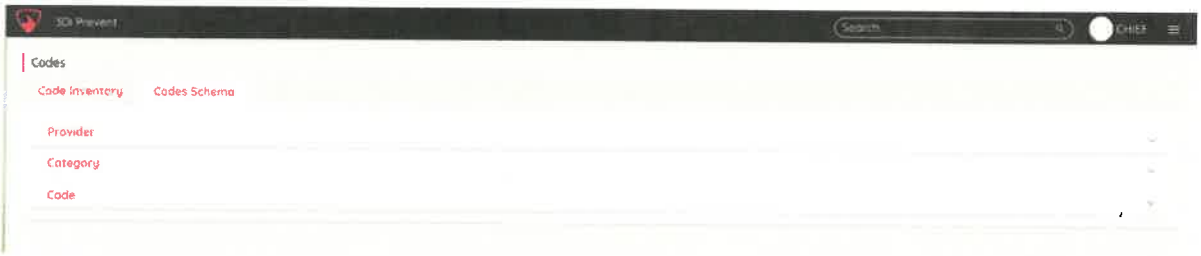
3Di Prevent provides tools to configure the entire process from defining the codes to setting the inspection workflows that incorporate actions based on violations.

Following image shows Code Inventory. Code Inventory consists of all of the different code books being used by a Fire Department. The code inventory can have multiple code books including multiple versions of the same code books (e.g. 2015, 2018, etc.). In the following image we have selected 2016 Title 24 Code, Chapter 1, Section 3304 f relating to Changes in Floor Elevation to Elevators requiring a ramp.

Following images shows how a particular code language can be modified and adapted to the ordinance of the city. Additional comments can also be added to send to the property owner. Such comments can be used for explanation of the code or include suggestions about remediation. When the system generates a notice, it automatically includes the reference to the code and the associated text.



Each fire prevention governing body uses a different schema (format) for its code book. 3Di Prevent Code Book Management modules allows defining different schemas for the code books. Once a schema is defined for a particular code book, that code book can be imported into 3Di Prevent. Many code book publishers provide the data in machine readable format.



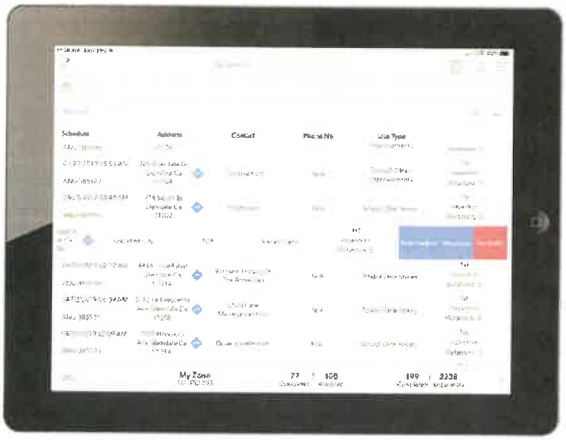
When implementing the system, we will work with LAFD FPB to determine which fire codes need to be imported into the system and if necessary, define the schemas and with the help of LAFD staff acquire and import the code books into the Code Book Management module.

Once a code book is loaded, codes can be associated with specific violations and then violations can be included in various inspection types.

2.5 Mobility

3Di Prevent supports multiple channels of interaction with the system. Three most important channels are:

- Mobile App
- Portal
- Integration APIs (For headless interaction with the system)



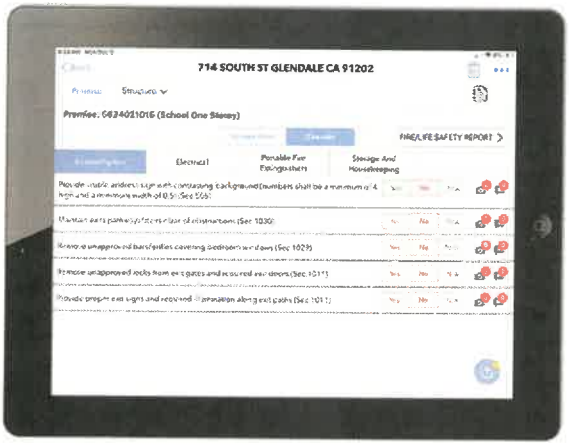
The mobile app associated with 3Di Prevent is a key element in increasing the efficiency and effectiveness of the Fire Inspection Management.

Following are some high-level features of 3Di Prevent Mobile App

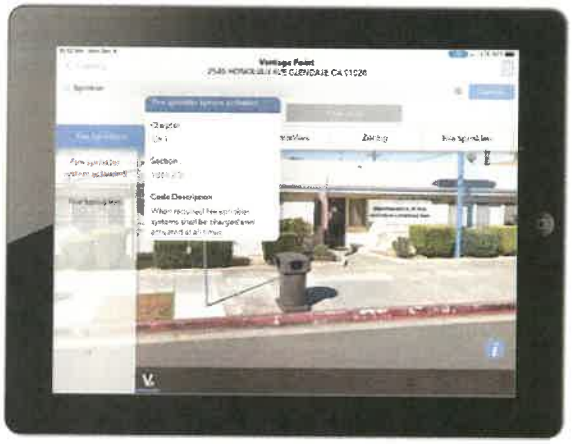
Work Queue with Property Information

- Universal App - supports all inspections types – Annual, WUI, Complaints, etc.
- Access to property inventory in the field
- Access to code books in the field
- Ability to issue notices (e.g. courtesy notice) in the field.
- Ability to attach images, comments, notations to violations
- Supports checklist-based inspection and Vantage Point inspections
- Supports store forward mode (continues to operate without connectivity)
- Integrated with GIS
- Routing for most efficient path of inspections
- Secure (support user authentication by login/password and biometric)
- Push Notifications

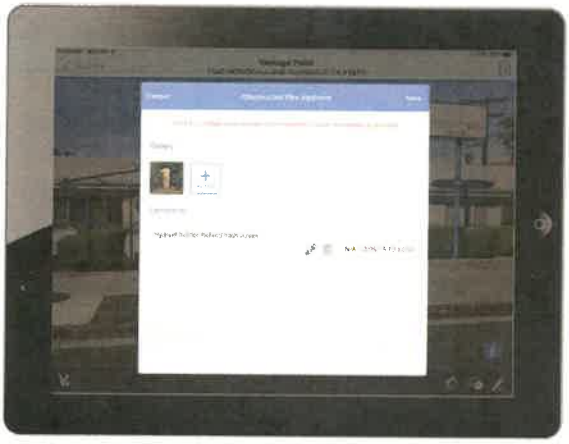
Vantage Point Inspection



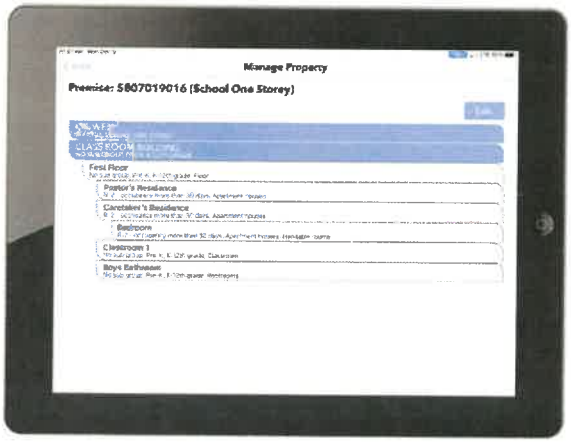
Checklist based inspections



Search for Violations by name and code



Attach Photos, Comments, and Code Reference

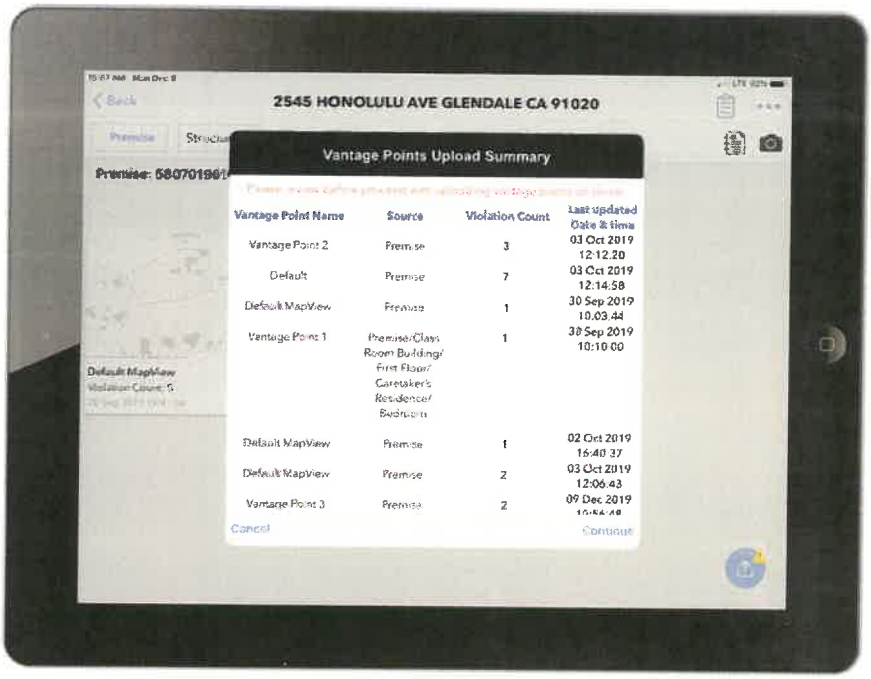


View and Edit Property Structure

Get Property, Contact, inspections History

Currently the Mobile App is only offered on iPads. It can be made available on Windows platform at additional cost.

3Di Prevent Mobile App uses "Store & Forward" technology to enable the user to continue working on the Mobile Application even when there is not connectivity. The system always uses local data and synchronizes with the server whenever the connectivity is restored. Following image show that an example of how the inspections have been completed due to lack of connectivity or



2.6 Usability

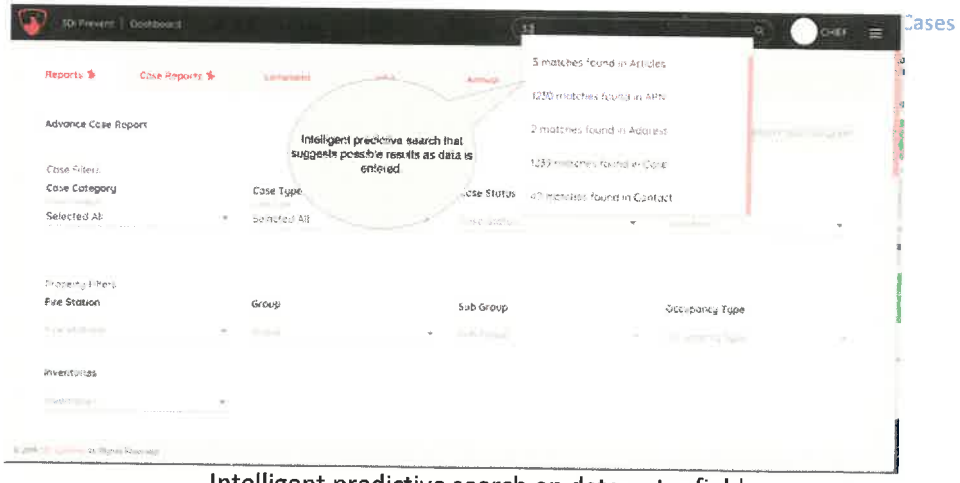
2.6.1 Modern Ux Standards

3Di's projects have always been distinguished by giving high priority to user experience (UX). 3Di's business tag line is – "Digital Transformation Amplified by Digital Experience". From the requirements gathering stage, 3Di involves User Experience experts in every project. Several of 3Di's projects and solutions have received awards and accolades for exceptional user experience.

3Di Prevent uses number of UX (User Experience) best practices including:

- Modern methods for data input and user interaction such as touch screens for all mobile devices with gestures for efficient and intuitive data entry and actions.
- All data fields can accept voice-based data entry on mobile device in Mobile App (iPad)
- Intelligent predictive search that suggests possible results as data is entered.
- Spatial context and spatial search (map based) for case selection, case management, reporting.
- User focused design of self-service portals for customers

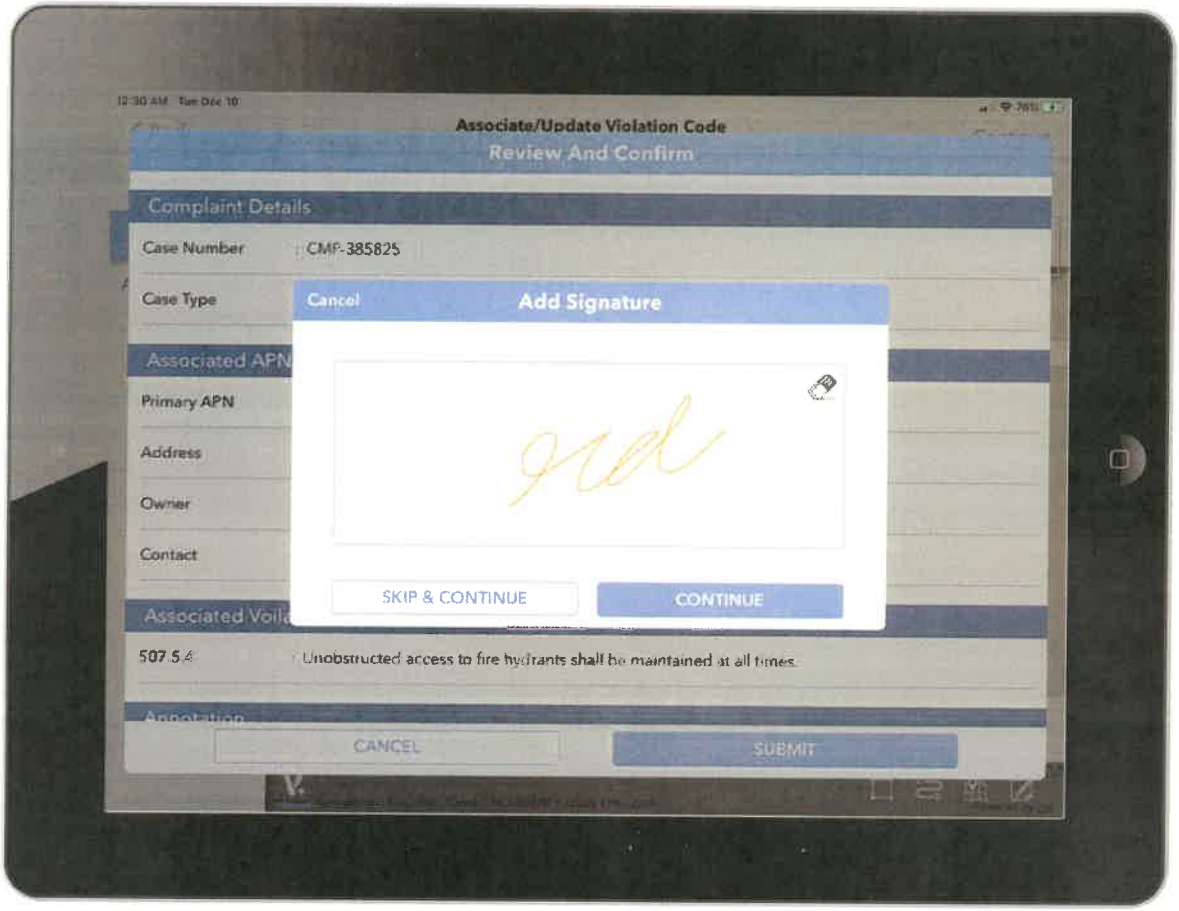
- Use of bar codes on notices for quick data entry using mobile devices with cameras. Most of the notices generated by the system include a unique bar code that can be used to quickly find the cases by pointing the camera to the notice instead of requiring data entry.
- Support for Virtual Agents such as Alexa and Google home for checking the status of complaints and service requests.
- 3Di pioneered Augmented Reality (AR) technology inspired drag and drop inspection technology that has been used for inspection in VMS3 and 3Di Prevent since 2015. The drag and drop inspection technology has increased the efficiency of inspections by an order of magnitude.
- 3Di Prevent uses Map View (GIS integration) through implementation to create user friendly and intuitive interface for property selection, visualization and reporting.



Intelligent predictive search on data entry fields

2.6.2 Digital Signatures

3Di Prevent's workflow allow collection of data in the field using forms. The form fields can be of many types such as text fields, drop down menus, radio buttons, check boxes, etc. One of the form fields supported by our system is a field called "signature field". (See image below). Signature field allows collection of signatures at any stage of the workflow. When a signature is required, the system pops a dialogue box that can accept signature. 3Di uses its own proprietary signature capture technology. Signatures capture includes digital watermarking that includes device ID, inspector ID, location stamp (from GPS) and timestamp (UT). Digital signature collection in the field does not require any additional devices or software.



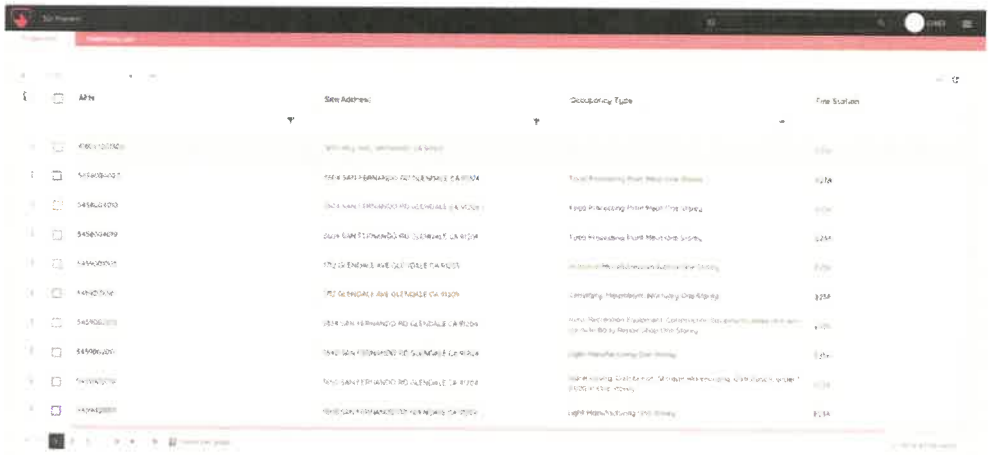
2.7 Property Inventory and Geographic Information System (GIS)

2.7.1 Property Inventory

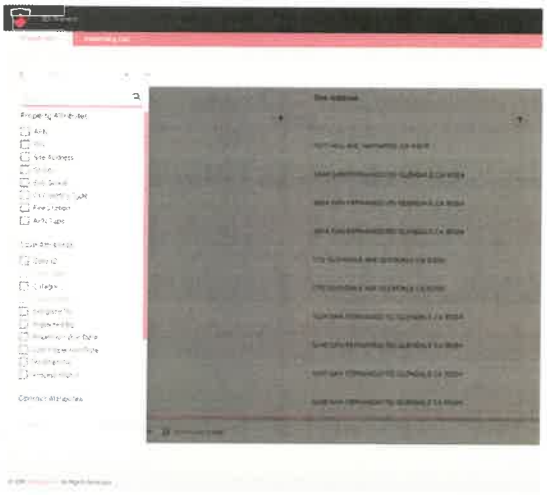
As described in earlier section, Property Inventory Management is one of four pillars of 3Di Prevent Fire Inspections Management System. 3Di Prevent includes a Property Inventory Management Module that has following features:

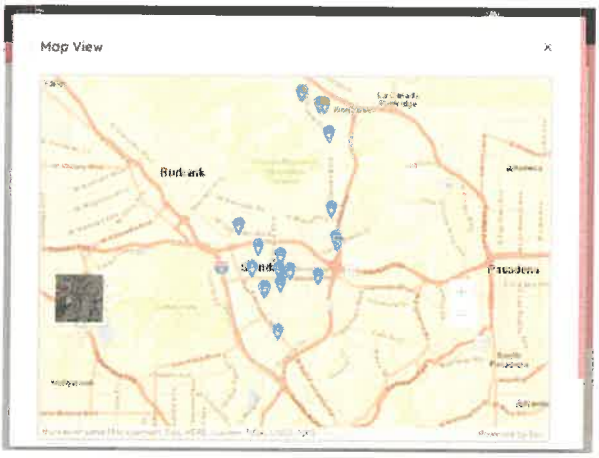
- Property Schema Management
- Property Upload, Update and Export (batch and API)
- Property Editing

Following image shows Advanced Property Inventory Management screen.



Following images show advanced property inventory search and map view based search:





Property inventory management module also allows creation of property inventory lists (e.g. All properties in fire station 56 that have not been inspected in 2019). Once property inventory lists are

created different actions can be taken on the property inventory lists such as exporting the lists, reporting, sending notifications/notices, assigning inspection programs, etc.

2.7.2 Location Validation and Addition

Having worked with various property inventory models and data sources over two decades, 3Di has developed a comprehensive methodology for importing property inventory data from one or more sources and maintaining the integrity of property inventory over time and integrating the property inventory data with GIS systems (ESRI GIS).

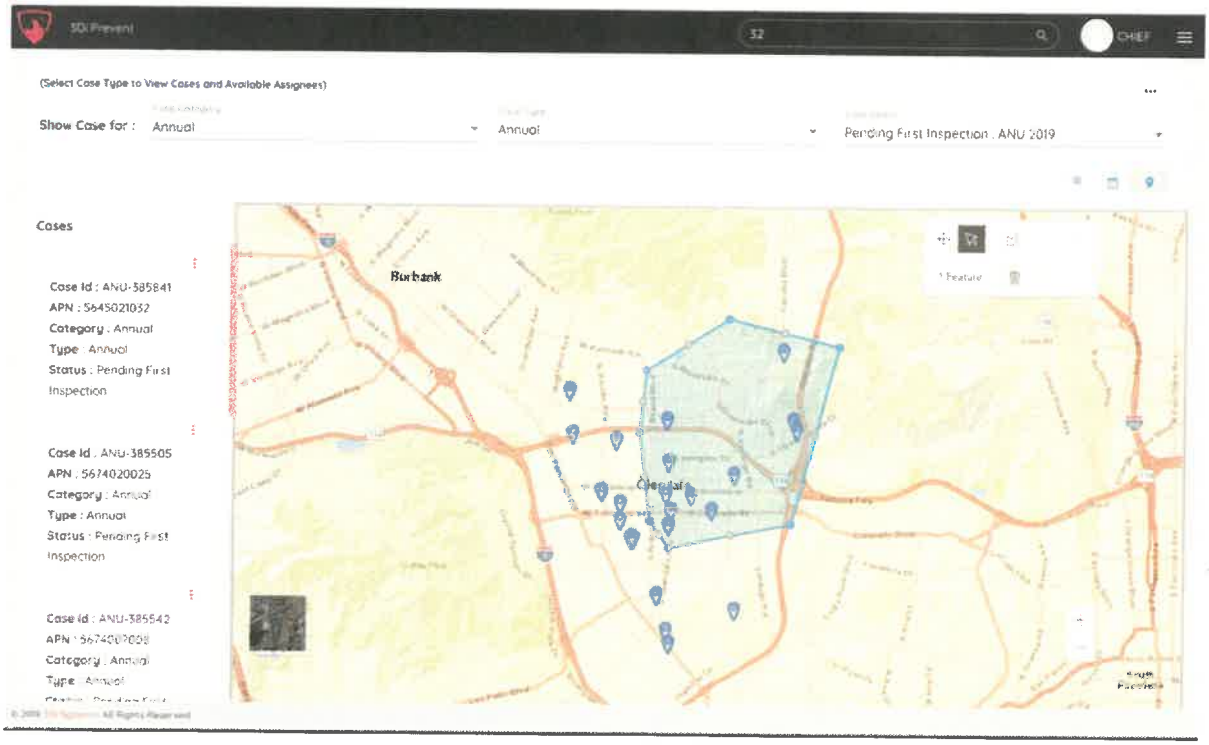
3Di has worked with LAFD for more than 5 years implementing and operating Fire Inspection programs for Vegetation Management (VMS3). An important aspect of operations is maintaining reliable property inventory over time. 3Di works with LAFD to update the property inventory every month. 3Di has developed automated script and business processes for importing data from LAFD GIS, County Property Ownership Data and City Bureau of Engineering. Using the tools and processes, we are able to upload, update and maintain property inventory data for majority of the properties in the city. For a small subset of the properties, 3Di uses semi-automated processes for cleansing the property data and managing inconsistencies in ownership, address information, property attributes etc.

Our proposed subscription fee will include supporting LAFD staff for ongoing property inventory management.

2.7.3 GIS based Data Visualization

In 3Di Prevent, property inventory management system is tightly integrated with GIS. Properties can be viewed on maps or as lists. Property maps are also used for intuitive selection of properties for specific actions such as notification, assignment for inspection, reporting, etc. By using GIS layers, additional information can be added to improve decision making and visualization.

Following images shows map view for a list of properties selected using a graphical tool. The selected properties can be assigned for inspection, notification, review etc.



Map Views are used extensively in the 3Di Prevent Mobile App for intuitive selection of properties for inspection, overview inspections, data visualization (e.g. Hydrant locations), etc. Following image shows map view for visualizing properties in a specific area. The map view is overlaid with terrain data and street data to provide better understanding of vegetation in the region and fire exit pathways in case of emergency.

Map View are used throughout the 3Di Prevent system, on the Portal and the Mobile App, for visualization and reporting and simplifying operational steps in inspections.

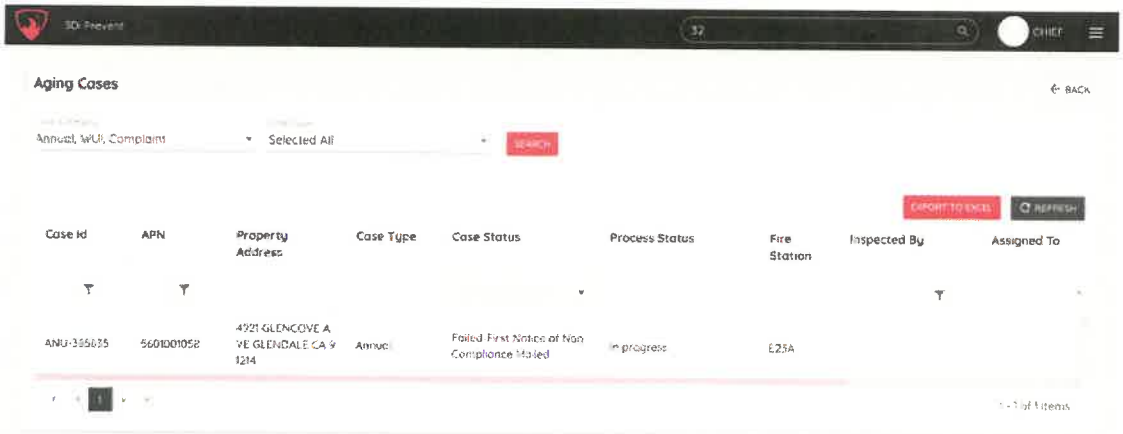
2.8 Operational Reports and Dashboards

Operational reporting and visualization of data are a required and important element of any system. 3Di Prevent has an extensive of tools for data visualization and report generation. The reporting and analytics module of 3Di Prevent use used for

2.8.1 Fixed reports.

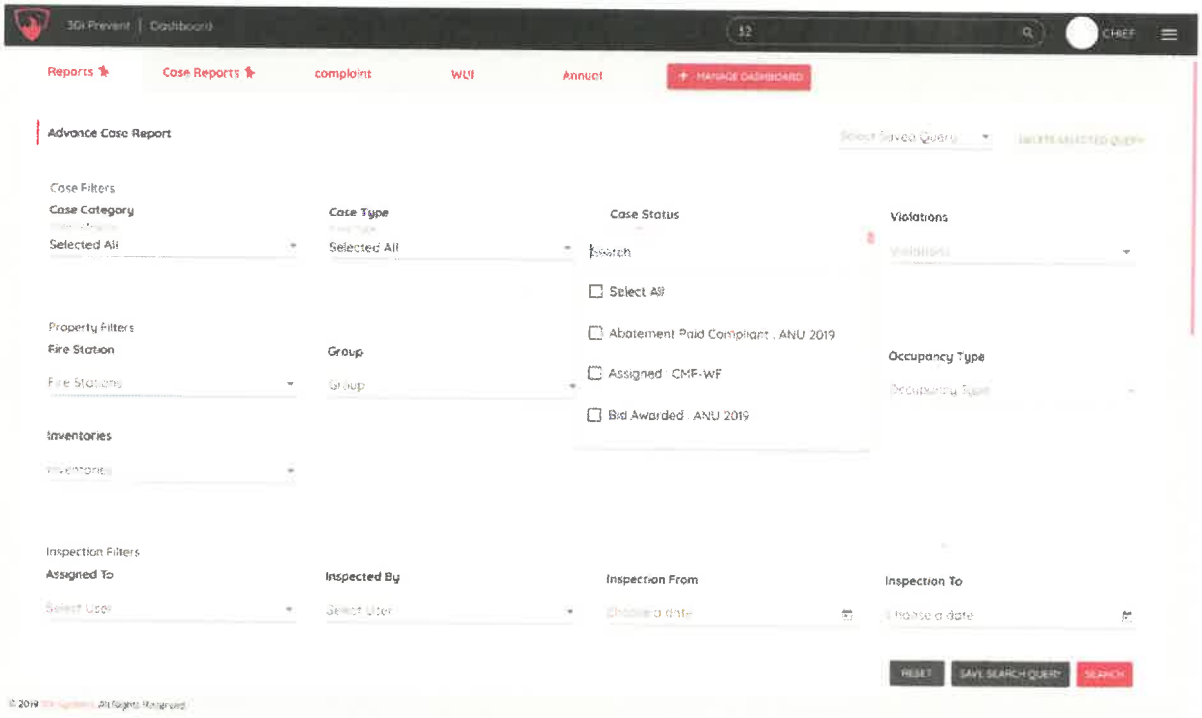
Fixed format reports about any aspect of the inspection management system. For example, inspection report by program, monthly complaints reports, productivity reports etc. At the time of implementation of the system, 3Di will work with LAFD to identify the fixed reports. Following image shows a sample list of fixed reports.

Following is a simple Aging Report.



2.8.2 Ad hoc Reports

3Di Prevent provides number of tools to generate ad hoc reports for inspection cases, properties, property owners and the operations. Following image shows an advanced ad hoc case report generation tool.



Report generated by using Ad Hoc seach tool shown above.

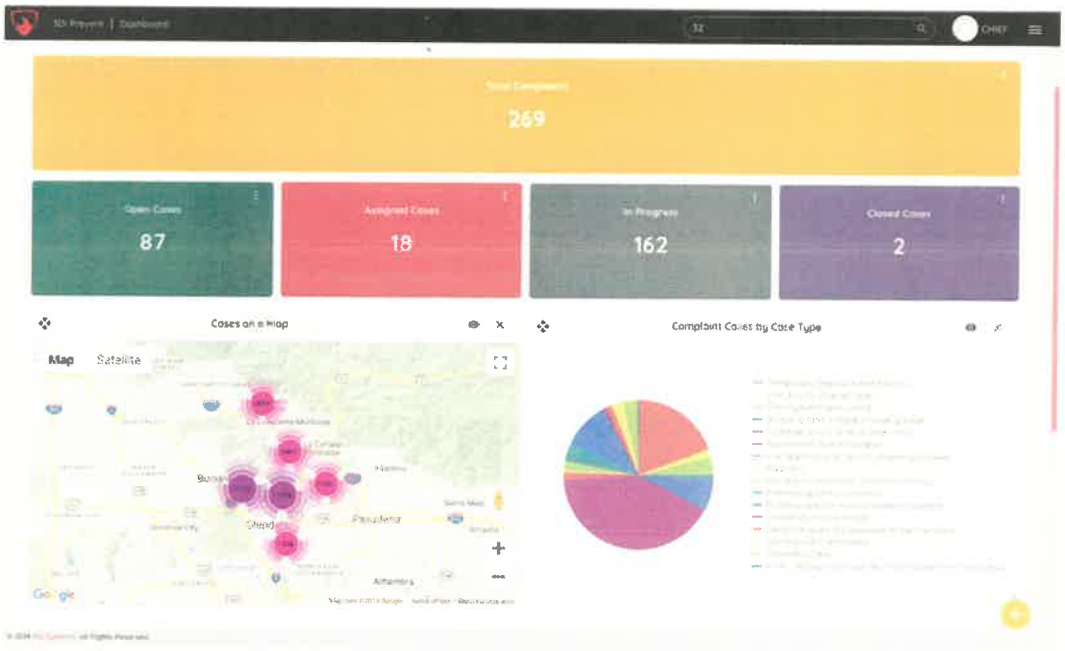
Search Results

View	Case ID	APN	Property Address	Category	Case Type	Case Status	Use Type	Property Owner	Assigned
	WUI-343909	5601001046	3930 BURRITT WAY GLENDALE CA 91214	WUI	WUI2019	Pending Initial Inspection		KAREN MITCHELL	Inspector
	CMP-385801	5646022043	1224 GLENOAKS BLVD APT 0609GLENDALE CA 91206	Complaint	Apartment Over Crowded	Referred to Code Enforcement	Single Open Condominium	DAVID BILLETT,BETH BILLETT	Inspector
	ANU-385485	580701901G	2545 HONOLULU AVE GLENDALE CA 91020	Annual	Annual	Courtesy Notice Ready To Mail	School One Storey	2555 HONOLULU LLC	Inspector
	ANU-385847	5637020021	401 LEXINGTON DR GLENDALE CA 91203	Annual	Annual	First Inspection-Violation Found	Industrial Open	GJORGJI GJORGJEV	Inspector
	ANU-385844	5601001060	4301 GLENCOVE AVE GLENDALE CA 91214	Annual	Annual	Pending First Inspection		ANAVILMA GAPICIA	Inspector cGill
	CMP-385846	5637020021	401 LEXINGTON DR GLENDALE CA 91203	Complaint	Smoke alarm is missing	Referred to Code Enforcement	Industrial Open	GJORGJI GJORGJEV	Inspector cGill
	WUI-385845	5645021032	1220 STANLEY AVE GLENDALE CA 91206	WUI	WUI2019	Open	Open	STEVE VENTRELLA	Inspector
	ANU-385487	5695013009	320 RIVERDALE DR GLENDALE CA 91204	Annual	Annual	Pending First Inspection	School Other Improvements	CHRISDIAN LLC	Inspector Wittkop
	CMP-385843	5644030028	707 ISABEL ST GLENDALE CA 91206	Complaint	Chimney is too close to tree limbs	Cancelled	Industrial Open	MICHAEL LAFEVER	Inspector

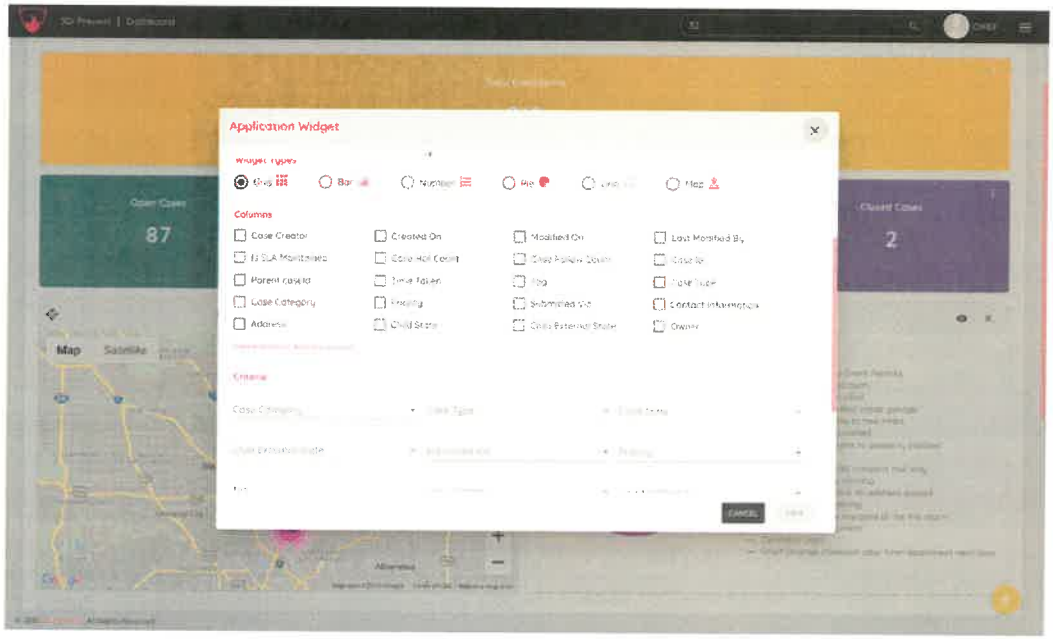
2.8.3 Dashboards

Dashboards provide an ability to view the data at instance in time. A dashboard consists of different widgets that fetch data from different sources into one or more dashboards.

3Di Prevent provides a sophisticated and flexible Dashboard tool. All users can have unlimited dashboards. The dashboards can be different by roles. All dashboards are drillable.



Following image shows a tool for making dashboard widgets.



All dashboards are drillable, allowing a user to click into the data to get more information.

Sometimes it may be necessary to use third party reporting and analytics tool. 3Di Prevent provides sharing of data with other reporting tools such Microsoft BI. There are two ways to share information

between 3Di Prevent to Microsoft BI. First, any data set in 3Di Prevent can be exported in common file formats such as Excel (CSV, XLX). Second, 3Di Prevent provides an API that allows third party system to access the data directly from the system when needed. Data APIs may require configuration and/or development to produce correct data format for external system.

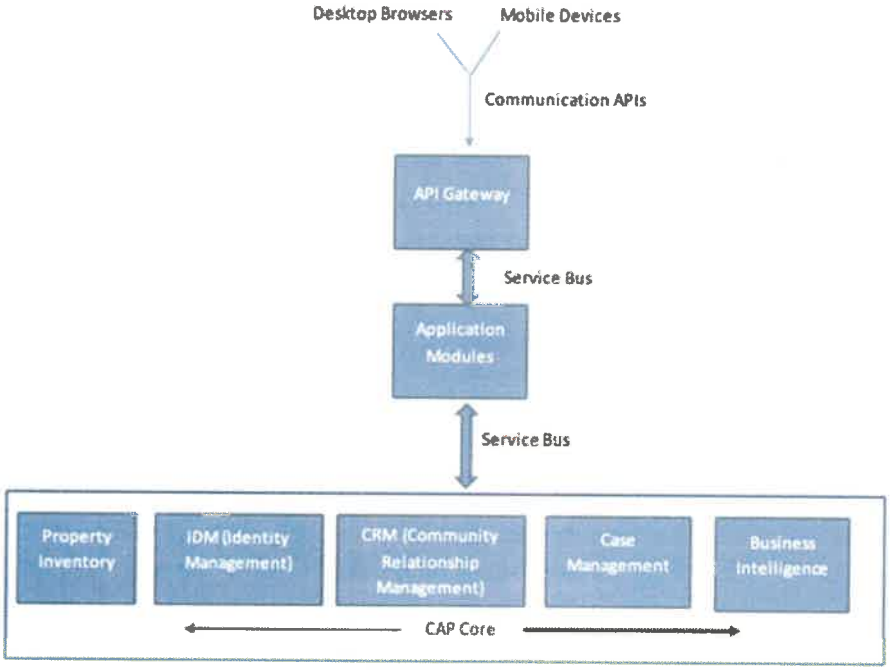
3Di Prevent Reporting System can also take data from other systems and display in dashboards as widgets.

3. Section 3: Non-Functional Requirements

3.1 System Architecture and Infrastructure

3Di is proposing to use 3Di Community as Platform (CAP) to build FIMS. Please refer below diagram which depicts technical architecture of applications built using 3Di Community Application Platform.

3.1.1 Overview of proposed system software components



Please refer brief details about each CAP Modules:

3.1.1.1 *Access Control System:*

3Di Community Application Platform has a built-in royalty-free open source access management system. Following are some features of Identity Management module:

- IDM utilizes oAuth2.0 Standard for identification, authentication and authorization of system users.
- IDM supports federation with Facebook and Google. The City can allow the users (e.g. residents, vendors) to user their Facebook or Google accounts to login into the customer portal.
- Supports openID based SSO (Single Sign On)
- Capability to Integrate with on premise of cloud-based LDAP such as Microsoft AD. This allows the City's existing users to continue to use their credentials for new FIMS applications.
- Role based Access control to system resources

3.1.1.2 *Community Relationship Management:*

One of the key elements of 3Di Community solution is a robust, enterprise-class Community Relationship Management (CRM) system. The 3Di Engage CRM's features include:

- Contact management
- Email campaigns
- User surveys
- Contact based reports

3.1.1.3 *Case Management*

3Di Community Application Platform supports Adaptive Case Management with following features.

- Pre-defined workflow templates support
- Visual workflow modeling support through BPM
- Low code support in updating workflow templates
- In built integration with Document management
- In built support to user notifications like Push notification, SMS and Email.

3.1.1.4 *Property Inventory*

3Di Community Application Platform supports in built property inventory as database. Some of key features are:

- Ability to import from city GIS layers
- Integration with CRM for property contacts.
- Ability to add, remove and update property parameters through system.

3.1.1.5 *Business Intelligence*

3Di Community Application Platform supports state of art Business Intelligence dashboards and reports. It includes:

- Dynamic Dashboards
- 360 degree reports giving relationship between Case, Property and Contact.

- User defined custom reports
- Exporting to excel and PDF support
- supports third party integration e.g. PowerBI.

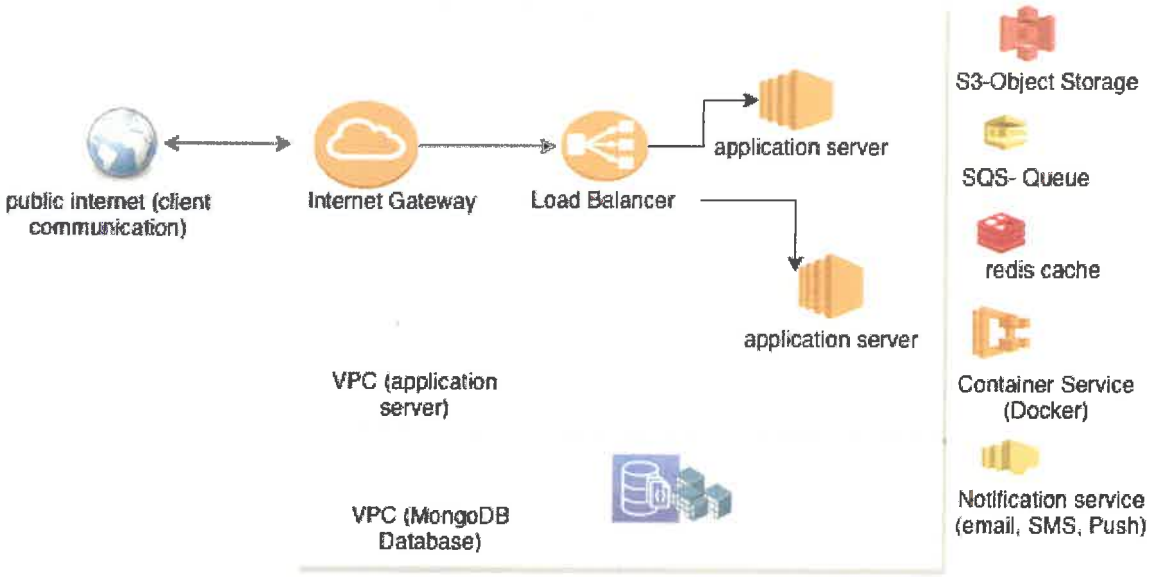
3.1.1.6 *API Gateway*

API Gateway provides seamless integration between system clients like Browser, mobile applications with Application. It translates APIs request into business data and provide data interface with application through service bus. It supports following features:

- It supports REST, SOAP, websockets based APIs.
- Blacklisting API support for unauthorized access
- Single place validation of API data in system.

3.1.2 Cloud Infrastructure

3Di is proposing fully managed Software-as-a-Service hosted in Amazon Web Services Cloud. Please refer below architecture diagram.



- All communication APIs between Cloud server and clients will be protected through secured http using TLS 1.2 protocol.
- Application is hosted on AWS EC2 server, which is connected through AWS VPN. It isolates Application from public internet. EC2 application communicates with internet only through Application Load balancer.
- AWS EC2 Servers will be attached to auto scaling group so in case of any unpredicted spike in usage, server will be scaled automatically.
- CAP utilizes MongoDB Atlas Service to host MongoDB. It comes with 3 servers to provide high availability.

- Atlas also provides continuous backup for database. In event of database failure, recovery can be done through backup.
- Please refer below table to understand functionalities for each of the AWS services.

AWS Service	Function
Internet Gateway	To provide internet access with VPC
Application Load balancer	SSL termination, balance the load between servers
EC2 server	Host application
S3	To store media, files
SQS	Provide queue service between application
ECS	Install, reset, uninstall applications through container service
Redis cache	Caching objects which are frequently used
SNS	Notification service for email, SMS and mobile push notification

3.1.3 System Storage (minimum of 10 years historical data)

3Di CAP platform recommending using MongoDB Atlas Service with 40GB storage for storage platform. Following parameters are considered to calculate storage:

Data type	Parameters	Storage estimated
Case Data storage	200,000 cases with avg 10MB data (without media and files) over 10 years	20GB
Property Inventory and Contacts		10GB
Audit trails and logs		5GB
System metadata and others		5GB

3.1.4 Network and Browser Specs

3Di's proposed FIMS System is hosted in cloud and will be accessed through standard browsers on desktop or tablet devices. Devices need to be connected with Internet with minimum bandwidth of 40MBps for optimum performance.

Please refer below table for our supported browsers.

Browser Name	Version support
Safari	>=11.1
Google Chrome	>=65
FireFox Mozilla	>=69
Internet Explorer	>=IE11
Microsoft Edge	>=42.1

3.1.5 Field Device Spec

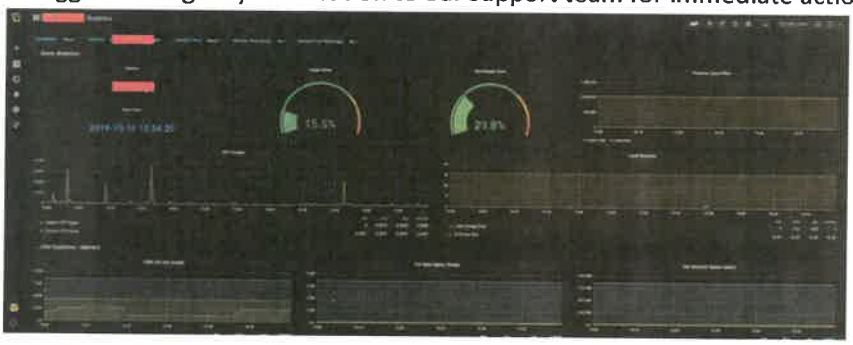
FIMS Field Inspection System will be accessible on tablet devices minimum resolution of 1024 * 768.

Our systems require iPad2 Air with minimum 2GB RAM for inspection device.

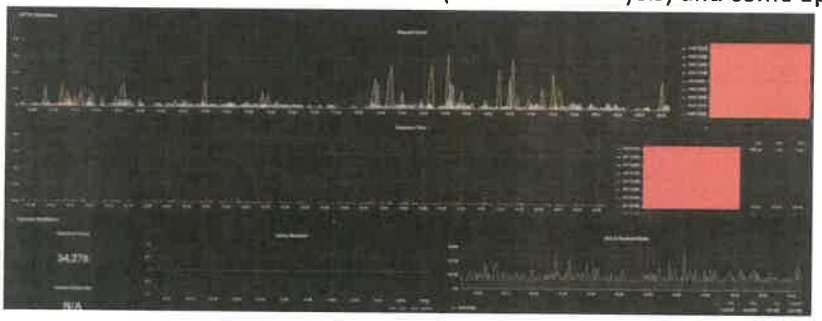
3.2 System Scalability, Performance and Growth

3Di has dedicated DevOps team to monitor infrastructure continuously and take prompt actions in case of any anomalies and failures. Please refer some of key points considered by DevOps team to meet system scalability, stability, performance and recovery from failures.

1. Application servers (EC2) are attached to auto scaling group so in case if system come across any unexpected load then it servers will be scaled automatically.
2. Database cluster will be using 3 Nodes to distribute load across them to meet highly available criteria.
3. 3Di's DevOps Portal continuously polls the alerts from system. In case of any anomalies or failure, it triggers emergency notification to our support team for immediate action.



4. Database cluster is taking continuous backup of primary node. In case of there is failure in database, it can be restored from known backup state. Minimum downtime of 30 minutes is expected to restore database.
5. If system outage occurs during functional time and if there was any work which was in process, then it will be restored through event logs. DevOps team will be responsible to carry out manual work of updating cases through event logs.
6. DevOps team also monitors system performance continuously. In case if there is any lag detected in performance, team will do the RCA (root cause analysis) and come up with resolution plan.



3.3 System Performance

Please refer to section 3.2

3.4 Data Protection and Recovery from Failure

CAP Platform have utilised MongoDB Atlas Database service for database. It is 3 node cluster with 1 as master and other 2 are secondary. Secondary nodes keep themselves in sync with master node. In case of event where data is lost on master node, Atlas immediately elects one the secondary node as master without any downtime.

In case of event where entire data cluster is down due to failure then, it will immediately notify our support team, which will bring back same cluster or most recent backup copy of cluster depends on issue. 3Di support team notifies to customer with details of event, cause and resolution.

3.5 System Environments

Please refer following table for list of environments during development. Each of this environment shall have its own Git repo to maintain them separately.

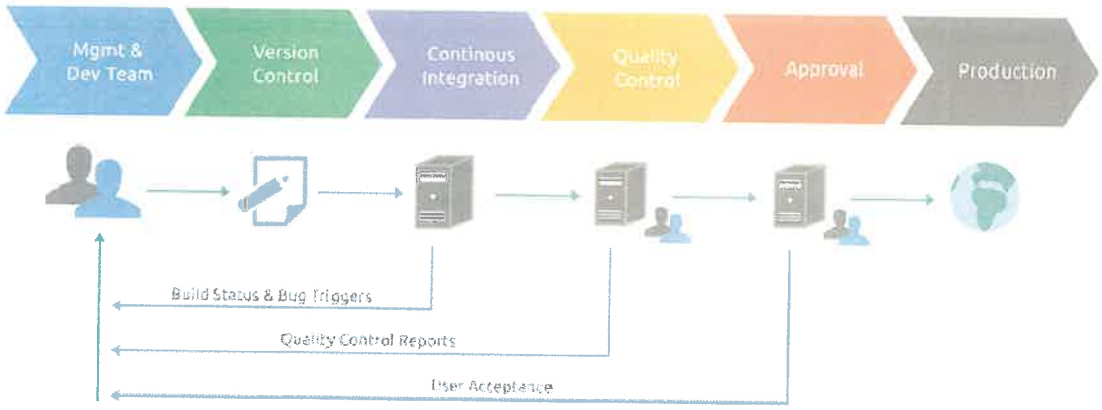
Environment Name	Details	Deployment Configuration
Development Server	For development team to develop and unit test	Development and QA will share same server and database cluster in multi-tenant configuration.
QA	QA team will perform all tests in this environment	Development and QA will share same server and database cluster in multi-tenant configuration.
UAT	Customer will verify system on UAT environment	UAT environment will be identical to production. Any enhancement or bug fix after Go-Live will be deployed on UAT server first, and then will be propagated to Production.
Production	Actual live system	It will have production configuration.

3.6 Release Management and Version Control

3Di has adopted the **Continuous Integration (CI)** and **Continuous Deployment (CD)** based approach for its CAP based application development.

A CI/CD server synchronizes project management, version control, test case management, bug management and the deployment process. Each process is automated in the CI server to reduce the possibility of errors in the project execution life cycle. The CI server automates project builds, deployment and bug reports. From our integrated CI, the unit testing, and manual usability testing from our QA team eliminates problems early on and keeps delivery on schedule. The following table lists tools and

technologies, which will be integrated with 3DI's CI Server. Figure 5 shows 3Di's application development lifecycle methodology.



Following table describes specific tools used for desired objective.

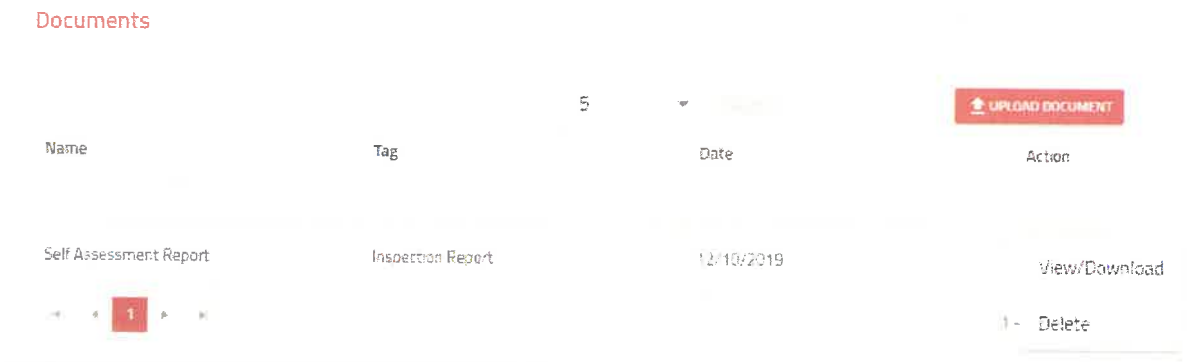
Objective	Tools/Technologies
CI Server	Jenkins
Bug Management System	JIRA/Zoho projects
Test case management System	TestLink
Project Management	JIRA/Zoho projects
Version control	Gitlab
Deployment	Docker, AWS ECS
Static Analysis	Lint, SonarQube

3.7 Data Retention and Archiving

As described in 3.1.3, 3Di Prevent will be configured to hold up to 10 years' worth historical data. After 10 years, data will be moved in the archival database either S3 storage or glacier. Data will be retained in archival database for another 10 years. This frequency can be increased with additional cost analysis.

3.8 Digital Content Management

3Di Prevent allows user to upload document against Case, Property and/or Contact. Following is the screenshot for Document Widget.



The Document widget allows user to Upload, Download and/or Delete the document based on user's permission level. All the documents being uploaded can be optionally tagged as well.

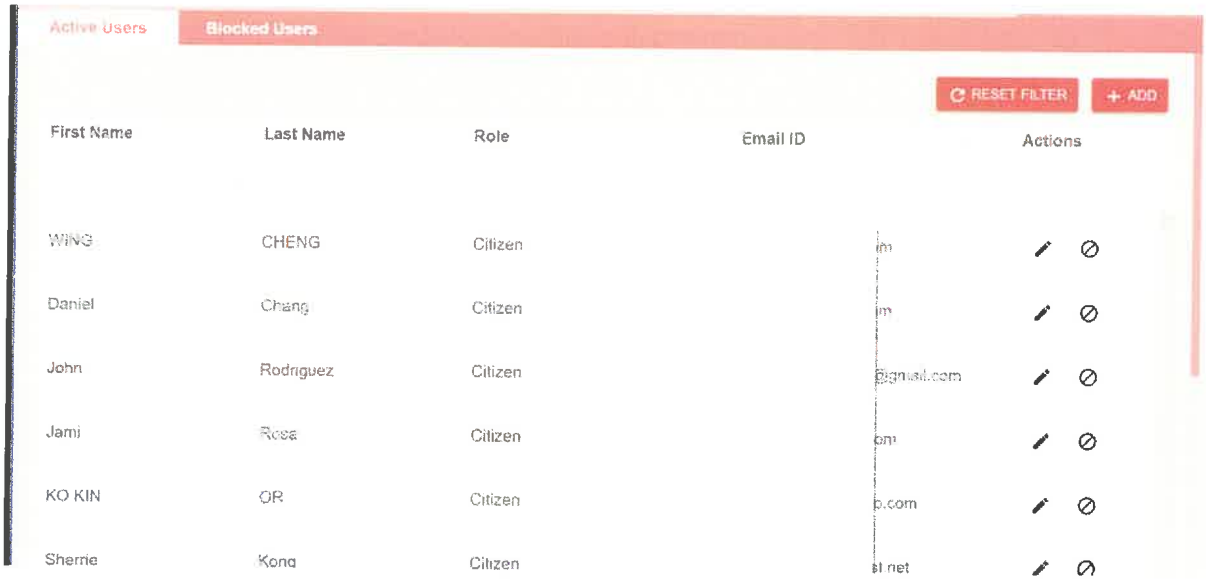
Apart from this document widget, the field mobile application will allow inspector to click pictures at various stages of inspection and those pictures will be uploaded on server.

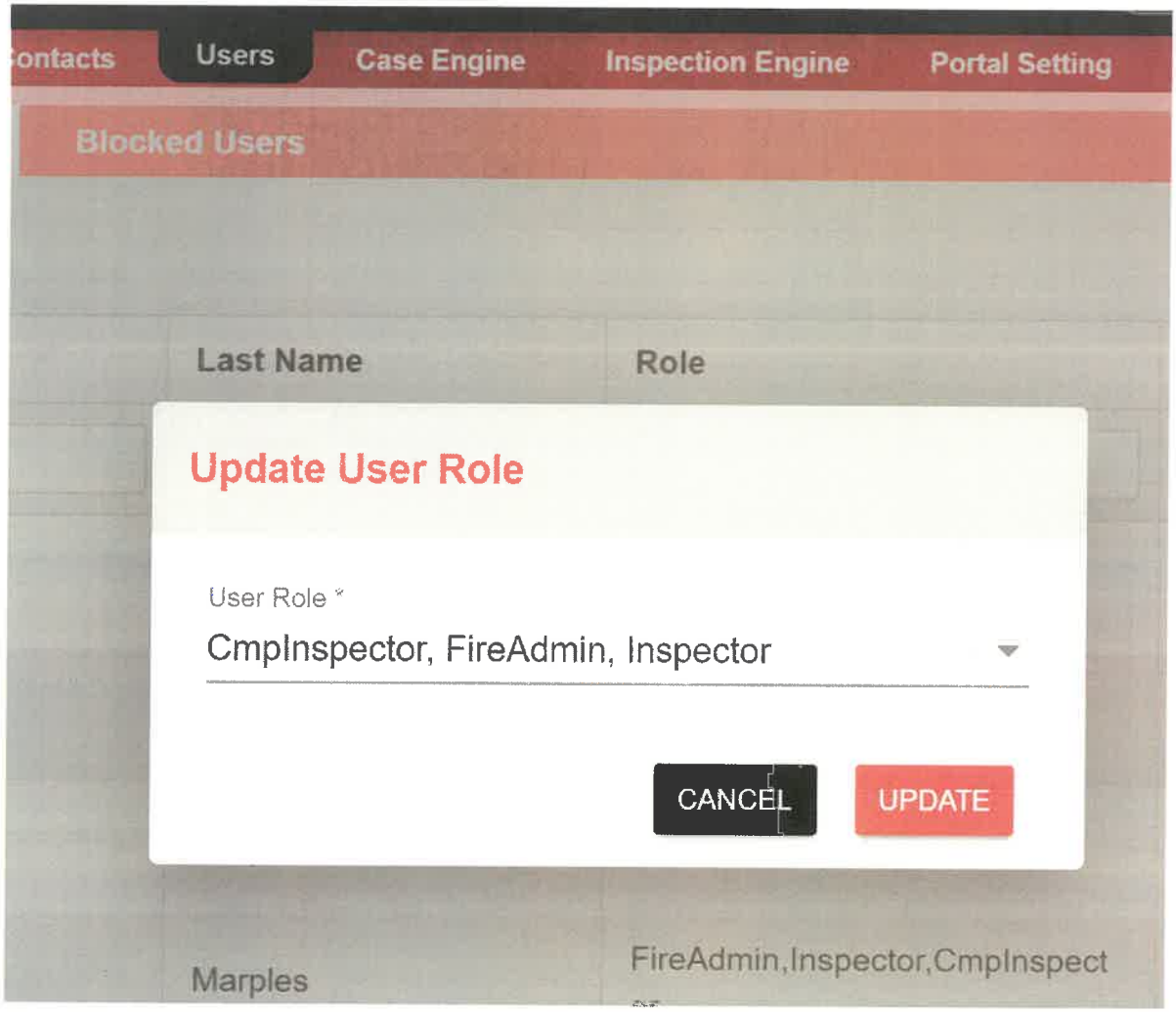
3.9 System Administration

3Di CAP Solution allows the users to manage various functions like Assigning Roles, Managing Violations etc

User Management

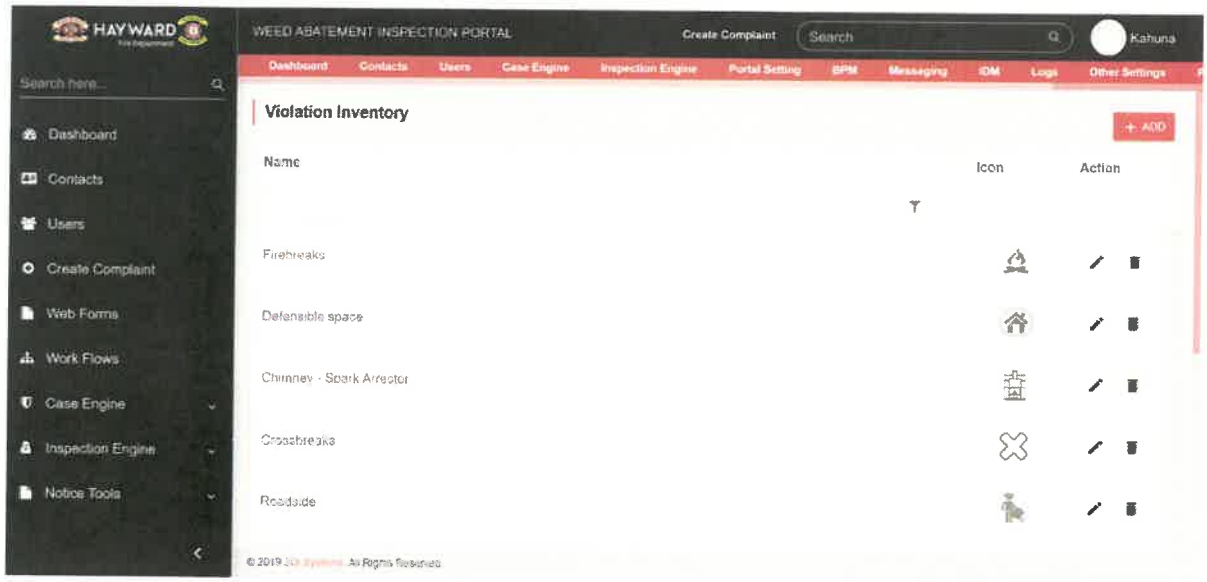
Admin panel allows any IT/ Business user with Admin permission to manage the users and their access. Admin user can block access or reset passwords for any user. Admin user can also change roles of the users.

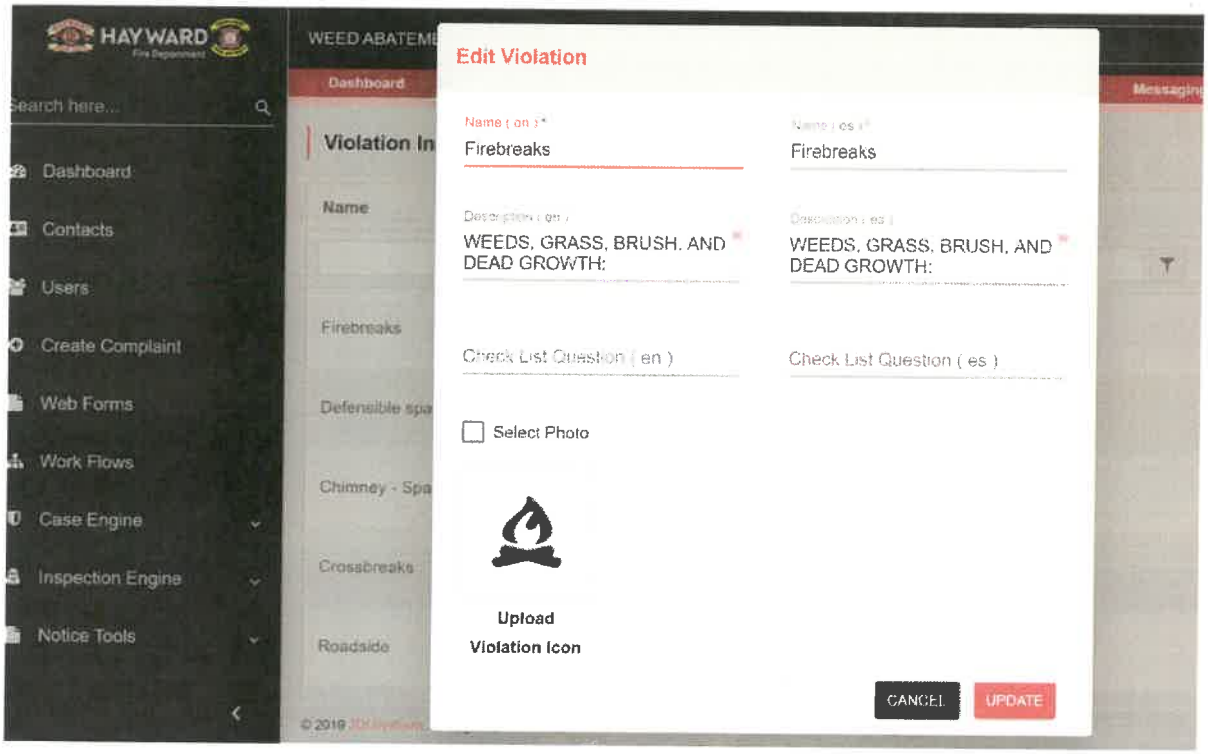




Manage Violations

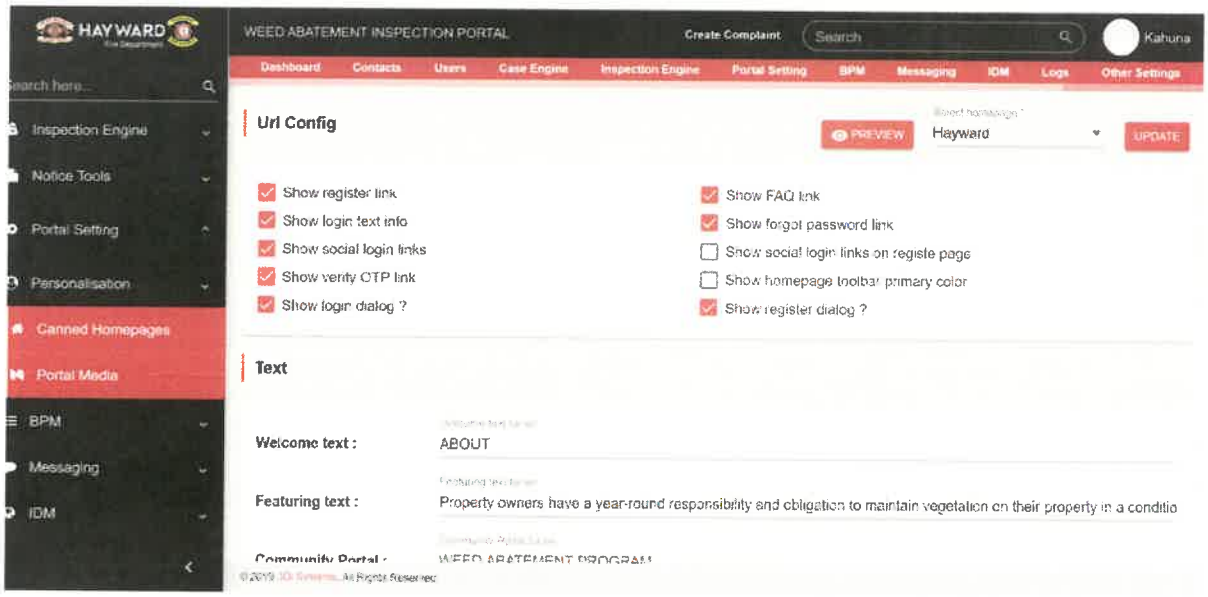
Admin Panel allows any business user to manage the list of violations, its brief description and an image/icon associated with the violation

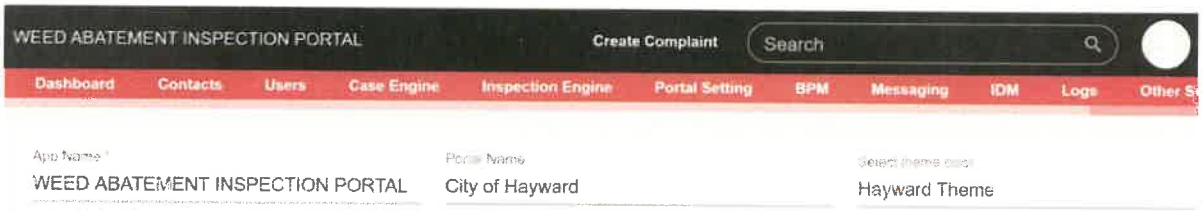




Branding

Admin panel can also be used to change the content on the home page and banner images.





Banner Image (1920*890)

Upload Banner

3.10 Data Management

Please refer to 2.4.

3.11 User Identity and Access Management

3.11.1 Interface with City's central identity management system

IDM module of CAP does have ability to interface with external user management. It can interface with external system through secured restful API.

3.11.2 Role Base Access Control – RBAC

3Di CAP platform API service bus is the only way to communicate between modules.3Di's CAP IDM Module enables ACL (Access control) parameter for each API. ACL relies on OAuth2 tokens to provide access to allowed resources. These tokens are generated only during authentication. All the external APIs are communicated through secured http (TLS 1.2).

3.12 System Security and Data Privacy

3.13 System Logging and Audit

3.13.1 Full Audit Logging

3Di's Community application platform has adopted event sourcing architecture along with Change Data Capture (CDC). All generated events in system from various modules are logged in separate event store as trail. CDC events are captured from database for every change in database. These events are also stored in trail. Event sourcing data will have following items:

1. Event/Action Name: e.g. login, logout, update property.
2. Action performed by: user and source (mobile, browser etc)
3. Action performed on: date & time
4. Previous data before performing action (if applicable)

3.13.2 Search and Report on Audit Log

Refer 3.13.1.

3.14 System Interfaces and Data Exchanges

3.14.1 General System Interface

3Di Prevent provides API and File based integration interface with other systems.

3.14.1.1 *API Interface – Providing Data to other systems*

For all the key entities in the system will expose RESTful APIs for other systems to consume. The interface will be documented and exposed using swagger. If integration key is available, the interfaces can be tested.

Following is the example of interface documentation.

Contact & Prop APIs

APN

Contact

GET	/api/Contact/Get	Get List of Contacts
GET	/api/Contact/Get/{id}	Get Contact by Id
POST	/api/Contact/Post	Create new Contact
PUT	/api/Contact/Put	Edit Contact
DELETE	/api/Contact/Delete	Delete Contact by Value
DELETE	/api/Contact/Delete/{id}	Delete Contact by Id

ContactAddress

ContactProperty

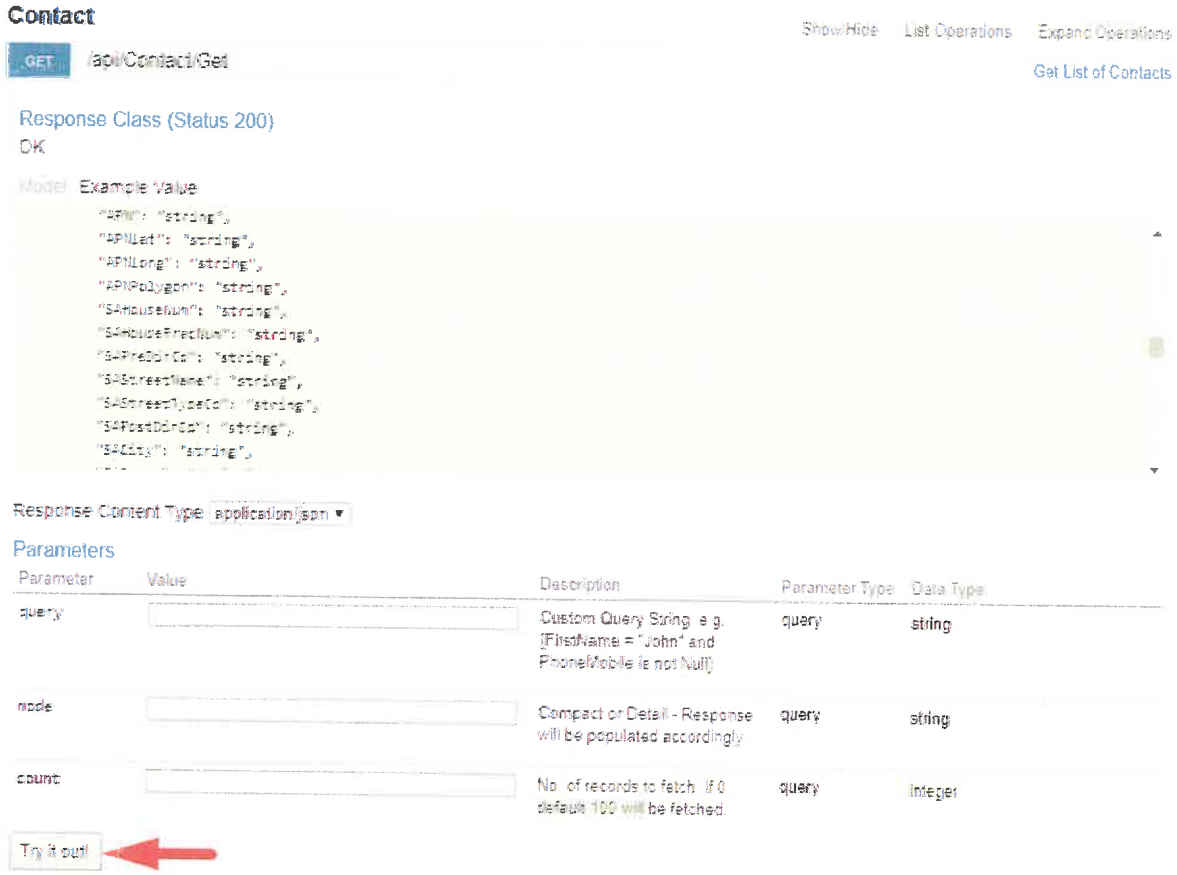
PIN

PropertyContact

SiteAddress

UnitAddress

Interface APIs can be tested as shown below.

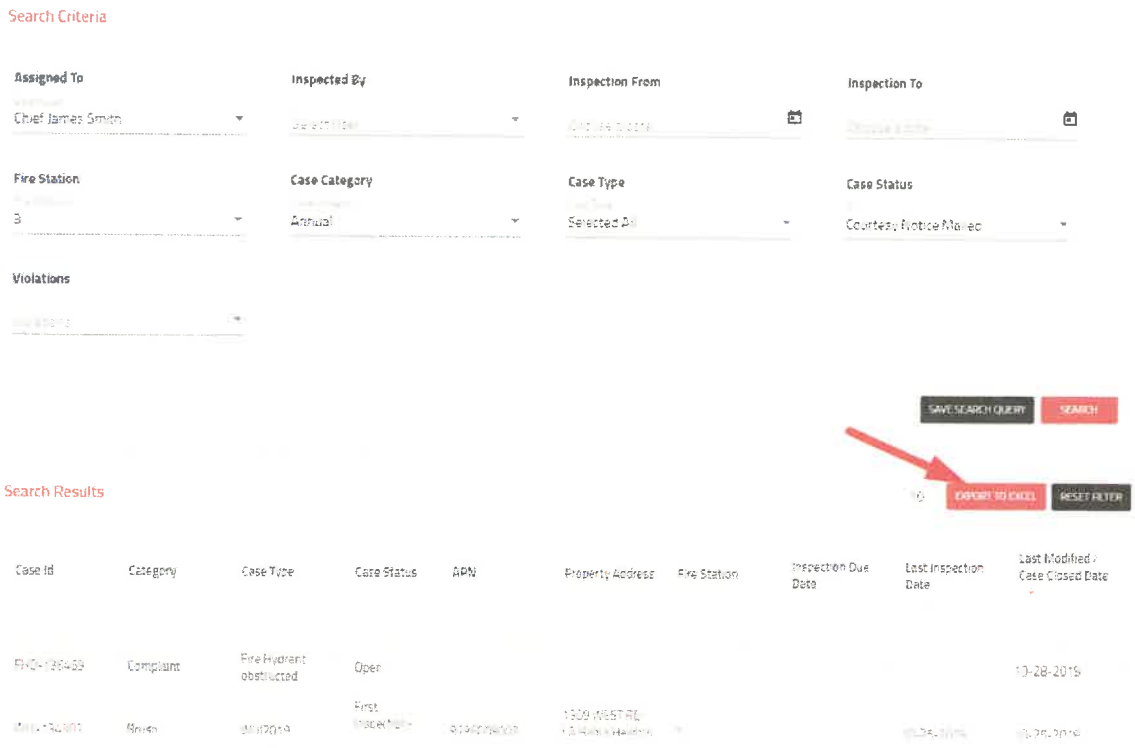


3.14.1.2 *API Interface – Fetching Data from other Systems*

3Di Prevent can consume RESTful APIs and XML/WSDL APIs. Based on the interface provided by the other system, a field map is created. Once the field map is configured, for every fetch call, validation check is applied, and errors are logged if any. 3Di is using Log Camp tool - https://www.logcamp.net/ to track this.

3.14.1.3 *File Interface – Providing Data to other Systems*

3Di Prevent provides extensive search capabilities over main entities. These search results can be exported to Excel file in a tabular form. It allows to pick and choose from what columns should be exported and will allow user to create data file for downstream systems. Following screenshot provides example of such export.



3.14.1.4 *File Interface - Fetching Data from other Systems*

3Di Prevent can consume CSV, Excel, JSON and ArcGIS shapefiles. A shared directory will be setup for other systems to drop the integration file. This file can be dropped manually or programmatically. The file will be picked up and process automatically as and when it is dropped.

3Di has used this approach to import monthly updates for Property Inventory coming from LA County.

3.14.1.5 *Custom Interface*

If any system does not provide either API or File interface, 3Di will evaluate the available interfaces. A custom integration interface will be built to integrate with such systems. The effort, schedule and cost will be determined after studying the interface.

3.14.2 LAFD Computer Aided Dispatch Interface

Please refer 3.14.1 for details of integration approach. APIs will be used to integrate here.

3.14.3 LA City Department of Cannabis Regulation

Please refer 3.14.1 for details of integration approach. APIs will be used to integrate here.

3.14.4 LAFD Compliance System - Brycer

Brycer is an address-based system. But the addresses used in Brycer are not standardized. Hence Custom integration will be needed in Brycer's case. The addresses between Brycer and Property data will be matched, and the integration will happen based on matched records.

3.14.5 LAFD Enterprise Analytics Data

3DI uses Mongo DB to store the Data. Mongo ETL utilities will be used to provide flat file dump to be used with PowerBI. The columns needed are configurable and can be set on need basis. The frequency of export can be configured.

3.14.6 LAFD Film Unit and FilmLA

Please refer 3.14.1 for details of integration approach. APIs will be used to integrate here.

3.14.7 Bureau of Street Services Special Events (BOSS)

Please refer 3.14.1 for details of integration approach. APIs will be used to integrate here.

3.14.8 Office of Finance LATAX System

Please refer 3.14.1 for details of integration approach. APIs will be used to integrate here.

3.14.9 LADBS Plan Check and Inspection System (PCIS) BuildLA

Please refer 3.14.1 for details of integration approach. APIs will be used to integrate here.

3.14.10 City of Los Angeles Financial Management System

Please refer 3.14.1 for details of integration approach. FMS requires specific format file. File based interface will be used here.

3Di has done this integration for VMS3 system.

3.14.11 City of Los Angeles 311 System

Please refer 3.14.1 for details of integration approach. APIs will be used to integrate here.

3Di has integrated LA 311 system with Los Angeles Housing and Community Investment Department's Geo Registry.

3.14.12 City of Los Angeles Universal Cashiering System (UCS)

Please refer 3.14.1 for details of integration approach. APIs will be used to integrate here.

3.15 Legacy Data Conversion

3Di has an expertise in importing customer Legacy data and update it in new system. 3Di has made Standard operating procedure for its team to conduct this. Please refer below key points of SOP.

1. Analysis of Legacy data size and structure. Review this analysis against the current system database design and come up with analysis report.
2. Design the implementation approach from analysis report considering developing code scripts or database tools or combination of both.
3. Develop the code scripts and verify them with data in standalone new database with legacy data.
4. QA of Legacy data conversion process on QA instance.
5. Once QA successfully completed, do legacy data conversion process on actual production server during peak off time.