CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

Date: January 3, 2020

To: The Mayor
            The Council

From: Richard H. Llewellyn, Jr., City Administrative Officer

Subject: **ADDITIONAL INFORMATION REGARDING THE INNOVATION FUND RECOMMENDATION – ZENCITY PILOT (C.F. 18-1054)**

RECOMMENDATIONS

That the Council, subject to the approval of the Mayor:

1. Establish and appropriate a new appropriation account entitled Office of the Mayor – ZenCity Pilot in the amount of $78,000 within the Innovation Fund No. 105/10 from the available cash balance of the Innovation Fund.

2. Transfer $78,000 from the Innovation Fund 105/10, Account to be Established, Office of the Mayor – ZenCity Pilot to Fund 100/46 as follows:

Fund/Dept.	Account No.	Account Name	Amount
100/46	003040	Contractual Services	$ 78,000

3. Instruct the Mayor's Office to:
   a. Separately track all encumbrances and expenditures of Innovation Fund monies so that unspent funds can be returned to the Innovation Fund at the end of the fiscal year;
   b. Report to the Innovation and Performance Commission with an accounting of the funds, the lessons learned, and any obstacles faced; and,
   c. Report to the Innovation and Performance Commission if, after the receipt of funds, the scope of the funded item differs from the scope approved for funding by the Mayor and the City Council.

4. Authorize the City Administrative Officer to make technical corrections as necessary to those transactions included in this report to implement Mayor and Council intentions.

SUMMARY

In a report dated November 7, 2018 (C.F. 18-1054), this Office transmitted the recommendation of the Innovation and Performance Commission to approve funding in the amount of $78,000 from the Innovation Fund for the ZenCity pilot project. This pilot project would be administered by the Mayor's Office Innovation Delivery Team (i-team). ZenCity is a social listening tool that would be used to capture the sentiments, behavior, concerns, and opinions of the City's constituents. Through the implementation of the ZenCity pilot, the i-team believes that the City will be able to cast a wider net in quantifying constituents' sentiments and opinions on City solutions, be proactive about addressing concerns before they become issues, supplement existing information technology and data tools, and tailor City services and programs by demographic groups, neighborhoods, and Council districts.

At its November 14, 2018 meeting, the Public Works and Gang Reduction Committee requested that the i-team provide more information regarding the ZenCity pilot project. Specifically, the Committee requested additional information regarding data privacy standards and also requested the i-team provide examples of similar project implementations in other cities. The Mayor's Office has provided the requested information, which is included as attachments to this report. The ZenCity Data Security Policy (Attachment A) provides information regarding how personal data is collected, handled, and stored in order to adhere to data protection standards. Attachments B and C provide case studies of ZenCity implementations in Houston, TX and Dayton, OH. Additional case studies are available on ZenCity's website, at https://zencity.io/case-studies/.

The Mayor's Office also provided a revised list of proposed use cases for how the ZenCity pilot could be utilized in Los Angeles. They are as follows:

Understanding Public Discourse related to the Homelessness Initiative
Problem/Opportunity: To address the City's homelessness crisis, the City has launched a series of initiatives. These include A Bridge Home, to increase bridge housing in the City, and the new comprehensive cleaning and rapid engagement (CARE) teams, to deliver services to homeless Angelenos living in encampments and address illegal dumping. These initiatives have ignited heated political debates in City Hall and town halls; yet, given that most residents are not present at these meetings, it is challenging to gain a representative and holistic understanding of the public's viewpoint.
Proposed Deliverable: A partnership with ZenCity will help the Mayor's Office gain deeper insights from social media and 311 and inform local conversations within Council Districts to critically address residents' concerns and lift up less vocal voices that may not be physically present for town hall meetings. Accessing these insights will help provide proactive management of the City's bridge housing facilities and CARE teams. If there are any issues at the bridge housing sites or at the assigned CARE team locations, the City would be able to receive real-time alerts and quickly address local concerns before they become entrenched in public discourse.

Understanding the Public's Relationship to the Mayor's Green New Deal

Problem/Opportunity: The Mayor is working toward a more sustainable Los Angeles. However, many details of this effort and policies contained in this plan have complex implications for communities.

Proposed Deliverable: Many programs such as bike lanes, public transit, and recycling efforts are implementing new and/or expanded agendas in 2020. These, and many other programs under the Mayor's Green New Deal, are key components of the Mayor's stated goal to make Los Angeles more sustainable. This platform will allow the Mayor's Office to better understand the nature of the online conversation around these policies, the sentiment of the discourse, and the reasoning of different concerned parties. The information derived from the ZenCity platform would rapidly and directly influence communications strategy, policy, and public engagement as these policies are implemented throughout the city.

Improving the City's Tree Canopy and Urban Forest

Problem/Opportunity: Planting more trees is a powerful way to protect our planet and strengthen communities hardest hit by the climate emergency. As part of the Mayor's Green New Deal, the City will plant 90,000 trees by 2021, focusing on its most underserved communities. It is important to capture concerns, ideas, and feedback from residents directly impacted by this new initiative, who are often less likely to vocalize their concerns at City Hall. Social media can provide additional insight into the public's main priorities when it comes to growing our urban forest.

Proposed Deliverable: With ZenCity, the City can analyze various social media feeds to better understand the concerns and priorities of the community when it comes to the management of our urban forest. This information can provide insight into expanding our tree canopy, addressing maintenance and safety concerns, optimizing tree life cycles, and protecting significant trees. These insights can also be used to develop guidelines for the City's Urban Forest Management Plan.

Identifying and Planning for Sidewalk Repairs

Problem/Opportunity: A high number of sidewalk repair requests are received through 311 and Council District offices. However, many people do not report damaged sidewalks through these avenues. It is important to gather as much public insight as possible to address community concerns over the course of the 30-year Sidewalk Repair Program.

Proposed Deliverable: ZenCity would provide the City additional data for sidewalk repairs and maintenance that can allow City staff to assess asset conditions, prioritize locations, and plan for future improvements using ZenCity's geographic location capability. Additionally, ZenCity can provide insight into public sentiment after the completion of a sidewalk improvement project, including information for maintenance. This information will be an essential insight for maintaining our sidewalks and optimizing the asset life cycle while mitigating sidewalk-related risk, as well as allow the City to be proactive in future sidewalk construction and maintenance.

Proactively Managing Street Furniture Installations and Maintenance

Problem/Opportunity: The City is looking to expand its Street Furniture Program, which includes the installation of 750 new bus benches as part of the Five-Year Strategic Plan. More data is necessary to understand where street furniture is needed, based on location,

accessibility, equity, inclusion, and climate. More data is also required to inform and identify what specific amenities are desired by residents. Community concerns on the maintenance, damage, or cleanliness of the street furniture can be captured through social media.

Proposed Deliverable: ZenCity will provide the City with the necessary data to prioritize locations and develop an informed plan for installing street furniture as part of the City's strategic plan. Reviewing public concerns through social media feeds and evaluating their geographic location will also allow the City to look beyond the strategic plan and improve the street furniture program based on the needs of the community.

The i-team will take the lead and coordinate with StreetsLA, the Mayor's Communications Team, and any additional necessary departments. It will be the i-team's responsibility to lead and facilitate the success of the overall pilot project. Of the five case studies provided, StreetsLA will manage *Improving the City's Tree Canopy and Urban Forest, Identifying and Planning for Sidewalk Repairs,* and *Proactively Managing Street Furniture Installations and Maintenance.* The i-Team will manage *Understanding Public Discourse related to Homelessness Initiatives.* The Communications Team will manage *Understanding the Public's Relationship to the Mayor's Green New Deal.* In addition, each team will create additional projects using ZenCity under the i-team's guidance.

Based on the additional information provided in the Attachments and this report, this Office respectfully resubmits the ZenCity Innovation Fund request for the Council's consideration. The proposed project budget and implementation process remain unchanged and are detailed in the original November 7, 2018 report from this Office.

FISCAL IMPACT STATEMENT

Approval of these recommendations will allocate $78,000 of the remaining $1,033,234 Innovation Fund 2019-20 available balance. The $78,000 will be transferred to the Mayor's Office to begin implementation of the pilot project that has been approved by the Innovation and Performance Commission. In some cases, departments will incur ongoing costs.

Attachments
A: ZenCity Data Security Policy
B: Case Study – How the City of Houston, TX, Tackles Distinct Transportation and Urban Mobility Challenges
C: Case Study – The Power of AI and Local Government: Staying One Step Ahead During an Emergency

RHL:BLS:112000566h

ZenCity Data Security Policy

Prepared by: Ido Ivry, CTO
Revised: 01-12-19

Introduction

ZenCity needs to gather and use certain information about residents mostly from open data and city-owned feeds. These can include customers, suppliers, business contacts, employees and other people the organisation has a relationship with or may need to contact.

We respect the privacy of residents and the security of the data we collect, store and analyze. This policy describes how this personal data must be collected, handled and stored to meet the company's data protection standards — and to comply with the needs of our city partners.

Policy Scope:

The Policy applies to:

- All employees, staff and contractors, employed by the company.
- All customer and user data collected and stored by the company.

Responsibilities

Everyone who works for or with ZenCity has responsibility for ensuring data is collected, stored and handled appropriately, and to report possible breaches.
Each team member that handles personal data must ensure that it is handled and processed in line with this policy and data protection principles.
We value our users' data and so we don't share individual user data outside of the company, and don't use data for anything more than providing our services.

Specifically, The **data protection officer,** Ido Ivry (the CTO), is responsible for:

- Keeping employees and management updated about data protection responsibilities, risks and issues.

- Reviewing all data protection procedures and related policies, in line with an agreed schedule.
- Arranging data protection training and advice for the people covered by this policy.
- Handling data protection questions from staff and anyone else covered by this policy.
- Dealing with requests for disclosing data in accordance to Data Protection Acts.
- Checking and approving any contracts or agreements with third parties that may handle the company's sensitive data.

Data Storage and backup:

- The data is stored on dedicated MongoDB storage on Microsoft Azure, using a managed solution - http://mlab.com. Only a select few of our R&D team can access the database, and production access is strictly done using 2FA (two factor authentication).
- Data is backed up nightly, with restore drills taking place quarterly.

Administrative safeguards:

- Raw data from clients is accessible only in the production database and research database (used for training machine learning models).
- Data is collected and, in case profile data is collected, such data is redacted whenever possible.
- Data is held in **as few places as necessary**. Staff should not create any unnecessary additional data sets. All client production data resides in one DB cluster in Azure, on the same region. All data resides behind firewall access.
- All data is identifiable by client, and as such can be expunged at the end of contracting
- Development data is done, to the extent possible, on mock client data.
  - .

Security measures:

- We run penetration testing (using 3rd party vendors) and implement remediations needed to handle all medium and high risk issues found. Last Penetration testing was performed during November 2019.
- All data access is secured with 2FA and our servers are private (dedicated) with SSH access only. Also, only backend developers have access to the database.
- ZenCity enforces admin strong password policy and session timeouts, so that no admin accounts would be usable by outsiders.
- Employees leaving the company immediately lose SSH access to servers and admin rights.
- Any export of data outside of the DB (for development purposes) is by permission from the data officer, only.
- We rely on Mlab.com, for security patches and regularly update the version of MongoDB, and we monitor our DB using telemetry and other alerts which detect panic / other irregularities on the database
- Most data access by casual users is done using read-only passwords (mostly the application itself does the writes).

Training and supervision:

- Data access policy is monitored and enforced by the CTO.
- All employees understand the security measures and limit the use of direct database operations, and even then they are expected and encouraged to use read-only access.
- All data incidents are immediately reported by employees to the CTO as the acting manager in charge of data security and privacy officer. He is incharge of investigating and notifying customers if necessary of any breach, and the actions taken to remedy and prevent future incidents.

Data Disclosure:

- In certain circumstances, Data Protection Acts allow personal data to be disclosed to law enforcement agencies without the consent of the data subject.
- Under these circumstances, ZenCity will disclose requested data. However, the data officer will ensure the request is legitimate, seeking assistance from the board and from the company's legal advisers where necessary. In addition, if permitted by law and circumstances, relevant client(s) will be notified of such requests.

zencity

How the City of Houston, TX, Tackles Distinct Transportation and Urban Mobility Challenges

How the City of Houston tracked citizen discourse surrounding traffic congestion and implemented a unique initiative to combat the issue.

After monitoring citizens' concerns surrounding blocked intersections due to Union Pacific Trains, the City of Houston, TX implemented a new, unique measure for abating congestion due to railroad crossings.

The Challenge   Union Pacific Trains frequently block traffic and emergency vehicles for extended periods of time. The blockage has become an increasing issue for residents and spurred noteworthy concerns over safety hazards and proper routing.

The Zencity Solution   Zencity's AI technology illuminated that malfunctioning train arms and subsequent serious traffic congestion had become significant concerns of Houston's citizens. The platform's data unveiled tha the citizens' concerns were not a singular, anecdotal issue, but instead a noteworthy matter that was increasing in discourse volume amongst citizens. Accordingly, over a period of three months, the City of Houston digitally gathered and analyzed resident discourse on the issue of train traffic. Zencity's AI aggregated the organic, digital interactions on the topic from social media, local media, and offline channels. During this time range, Zencity reported a significant increase in discourse and negative sentiment towards the City surrounding the topic. Zencity also provided qualitative insights on the discourse, such as examples of the main comments and diction utilized by citizens. Thanks to the insights that the Innovation and Communications teams obtained from Zencity, they were able to build better messaging and an effective course of action for the City. They also proactively monitored citizen-suggested solutions for the problem in order to ensure that their initiatives were aligned with the majority of citizens' needs. Ultimately, Zencity enabled Houston's leadership and staff to better understand the nuances of citizens' concerns, communicate data-backed insights across different departments, and commence a smart city initiative in collaboration with Microsoft for tracking malfunctioning train arms in real-time.

Actionable, Data-based Insights
1. **Sentiment analysis overtime** enabled the City to differentiate how the majority of citizens felt about the train traffic and recommended solutions. With this ability, officials understood that the negative sentiment was not a one-off occurrence, yet instead an issue that grew over time, ultimately warranting action by the City. In addition, the City's communications department was able to easily expand their discourse intake, without the need to allocate more resources and manpower.

SCORE OVER TIME

1000	
800	
600	
400	
200	
0	

June 2019   July 2019   August 2019

zencity
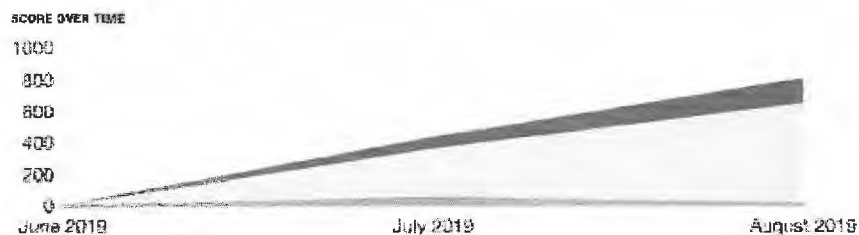
2. **Geo-located data** insights allowed Houston to easily parse feedback by neighborhood and pinpoint areas that were most impacted by the malfunctioning train arms.

3. **Real-time discourse analysis** of social media data gave Houston leadership and staff a more detailed picture of resident feedback. For example, Zencity's data helped the City identify resident-backed solutions such as building bridges or underpasses to bypass the railroad, prohibiting trains during rush hour, or publishing the train schedule so drivers can calculate their commute in advance.

> Zencity helped us pinpoint the significant spike in social media interactions surrounding the railroad issue impacting our City. With this powerful qualitative and quantitative data, we quickly understood that an action by the City was necessary in order to mitigate this issue before it got worse. With Zencity's insights, we were able to build an effective initiative and communicate productively with our residents.
>
> **Alan Bernstein**
> Director of Communications, Houston, TX

Results

Houston successfully implemented a real-time traffic visualization technology. With this capability, the City identifies railway malfunctions and shares the reports with Union Pacific Railroad Co to advocate for significant railway improvements by the franchise.

The City and METRO Houston built a better communications strategy around the issue (considering residents' feedback) and effectively aided residents on the correct procedure when encountering a malfunctioning arm.

The City confidently allocated more resources and staff to the railroad issue due to Zencity's insights on the significant increase in resident discourse.

zencity

The Power of AI and Local Government: Staying One Step Ahead During an Emergency

How the City of Dayton managed multiple crises and adjusted its communication strategy with the help of AI.

Over the course of several months, the City of Dayton, OH, monitored citizen feedback and improved its crisis procedures during and after each challenging situation that occurred in the city.

The Challenge The City of Dayton, OH, experienced a number of difficult events from February to August of 2019. These included a water main break, KKK rally, a tornado, and a mass shooting. These events triggered significant citizen discourse with specific instances garnering more negative sentiment than others. The municipality had to identify what were the key concerns based upon its citizens' feedback and what was the best approach to successfully address those topics.

The Zencity Solution The City of Dayton used Zencity's platform to identify specific concerns of citizens during and after the crises that affected the City. The municipality used Zencity's AI to aggregate data from the 311 dispatch center, social media, the local media, and other relevant data sources. During each crisis, the platform showed that there was a significant increase in discussions centered around distinct subtopics related to the crises. For example, during the water main break, the City's 311 dispatch center received thousands of calls that overwhelmed the service. It needed to efficiently sort through the large volume of information that was coming in. The City turned to Zencity's sentiment analysis to follow in real-time if its communication on the crises was satisfactory for its citizens. The platform showed, for example, that there was dissatisfaction with the lack of information on the status of the repairs. The local administration reversed that negative sentiment by increasing the frequency of their updates. This type of proactive assessment of discourse subtopics was then applied to all the other crises that occurred in the city. When a white supremacist group announced their intention to hold a rally in the city, the local government immediately denounced the event and monitored citizens' reactions with Zencity's platform. It became clear via Zencity's data that citizens wanted to act and respond, so the City quickly started a 'United Against Hate' initiative as an outlet where citizens could peacefully protest the event. The citizens were overall pleased with the way the City handled the event and how it did not result in a violent situation. By utilizing the Zencity's capabilities to pinpoint the unique reasons behind citizen dissatisfaction, the municipality was able to tackle each issue head-on quickly and efficiently.

Actionable, Data-based Insights

1. **Real-time analysis** of the data sources supplied the City of Dayton with an overview of the efficiency of its services so that the municipality could identify areas that needed a quick response. For example, when a tornado hit Dayton, the Zencity platform alerted the City of the need to repair emergency sirens after citizens complained online that they could not hear them and that mobile notifications did not suffice.

2. **Sentiment analysis** enabled the city management department to determine if it was taking the best course of action in response to a crisis or if there was a need for a different approach. For example, during the mass shooting in August where ten people were killed,

citizens had an overall positive response towards the way the City handled the crisis. The citizens considered first responders as "heroes" and were extremely grateful that they had responded so quickly to the shooting, thus preventing an even greater tragedy. This citizen feedback helped validate the procedures of the first responders and the City in the face of such challenging circumstances.

SCORE OVER TIME
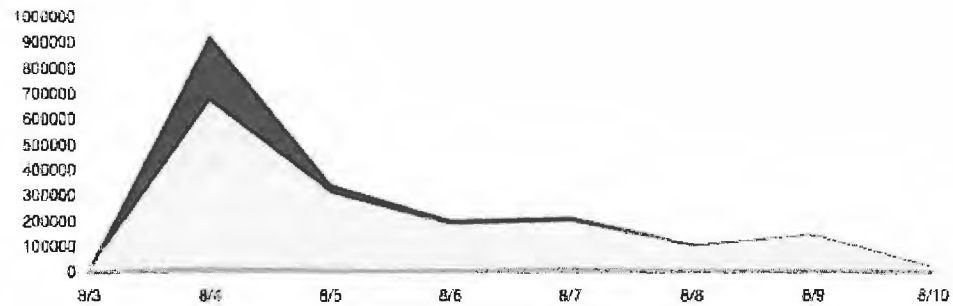
> Our citizens are very active on social media. We used Zencity to find any gaps we had in our online media strategy and we took proactive measures to ensure that any information that they were receiving about a crisis was up-to-date and accurate. It was a lifesaver and really helped us speed up our response process.

Joseph Parlette
Deputy City Manager, Dayton, OH

Results

The City of Dayton improved its citizen-facing communication strategies and enhanced the efficiency of its crisis monitoring capabilities.

The City used AI to augment the performance of the services that it provided to its citizens during each crisis.

The municipality was able to validate the success of the City's hard work based on data.