2023

COMMERCIAL PROPOSAL

PROPOSAL FOR
INSPECTOR 3D SERVICE
City of Doral

July 06 , 2023

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INDEX

1 BACKGROUND OF CITY OF DORAL

City of Doral need to obtain a survey data for identify problems with the status of some specifics elements of the city, like to sidewalks, public lighting, signals and other, for this, XYGO proposes a state-of-the-art survey that allows City of Doral to have a 3D Digital twin that allows a management of areas for analyzing and identify all of these anomalies.

Resume Project Scope Description:

Hire a service that allows the city to obtain the following:

- Develop a 3d **digital twin model** applied to the **detection of cracks and unevenness** in the pavement of public spaces (sidewalks) due to the effect of trees and/or other causes, through a survey with lidar sensors, 360 images and the creation of a Digital Twin platform for its detection and analysis.
- **Use the Digital Twin** platform to carry out other inspections in a systematic and automated way, such as determining public lighting in poor condition or does not work.
- **Use the Digital Twin** platform to carry out other inspections in a systematic and semi-automated way, such as determining sign inventory.
- Use the Digital Twin platform and Data Model for support a Smart Cities initiatives
- Use the Digital Twin platform and Data Model for update and add new data to GIS Database.

2 SPECIFIC OBJETIVES

According to the information provided by **the City of Doral**, XYGO propose to provide a service to achieve the following objectives:

- ✓ Planning the survey areas and collecting with mobile and sensor all the study areas the deliverables offered. The specific surveys to be carried out may be requested by Work Order, which will be measured by linear miles within one or more sections of the city..

  The service includes 2 different passes, one of them is through the use of a vehicle during the day, the second one is through the use of a bike with all the sensors too for a pass during the day rolling on the sidewalks.

- ✓ Obtaining Lidar point cloud, images and other attributes defined.

- ✓ Generation Digital Twin Model / Data Base

- ✓ Integration of other data sources (from existing city data bases, for examples Tree data base)

- ✓ Process the collected data, classify, and analyze according to the rules and specs that City of Doral will define and provide the result obtained from the process.

- ✓ For these proposal we do not include Integrations with other corporate software.

- ✓ Data Mining, Analyze
  - Detection of sidewalks faults and others
  - Detection of public lighting in poor condition or does not work.
  - Create a sign inventory

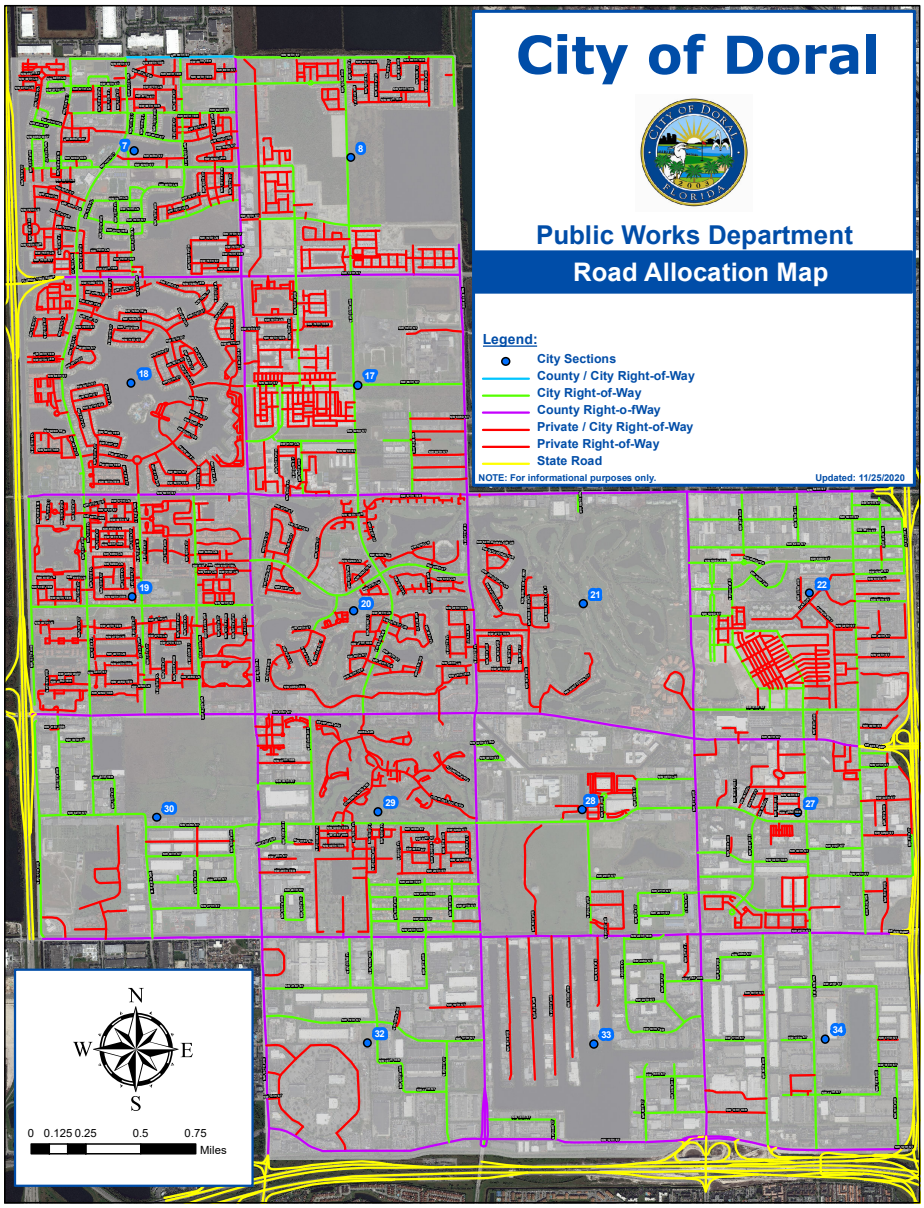
- ✓ Publishing
  - Provide a platform for the visualization and administration of the Digital Twin and the different deliverables mentioned above

- ✓ Delivery, publish
  - Deliver the data collected and generated from the different analyses, for the different software and platforms (Digital Twin, GIS, Smart cities, others)

- ✓ Config Reports

3 AREA TO PERFORM THE SERVICE

The Digital Twin (point cloud and images survey) project considers work orders within the following area and sections requested by City of Doral , these are specified in the image (green segment / 85 linear miles app) below:



4 DESCRIPTION OF INSPECTOR 3D SERVICE / XYGO SERVICE

XYGO has extensive experience in the development of field data collection and survey services using LIDAR technology.

In 2007, XYGO created the Department of Geographic Information Systems Mapping LIDAR oriented to the development of technologies applied to the capture and interpretation of LIDAR information.

As a result of this initiative, companies whose focus is the distribution of services and the management of infrastructure assets located in the city (Ex: Water, Gas, Electricity and Highways), turn to XYGO with the main objective of implementing the use of these technologies in solving your business problems related to the operational management and maintenance of your assets.

XYGO's Lidar unit is equipped with laser scanner technology, an HD camera and position sensors such as GPS, INS unit, among others, all mounted on a different kind of transport (for example Professional Drone, Vehicle, ATV, Bike, Train, people walking) with high technical performance, capturing a terrain model in its flight or route that allows detect the different structures and natural terrain of the earth's surface.

XYGO Mobile Lidar position sensors provide X, Y, Z coordinate data that are added as attributes to the points captured by the laser scanner, along with other data such as intensity and color.

This system allows high precision measurements of distance, widths and lengths, heights, heights with coordinate, hypotenuse, triangulation measurements, digitization of points, lines and polygons, georeferencing of elements, planimetries, among others.

XYGO currently has the technical and human capacities necessary to carry out this service.

Imagen, DRON MATRICE 600. Truck for mobile mapping

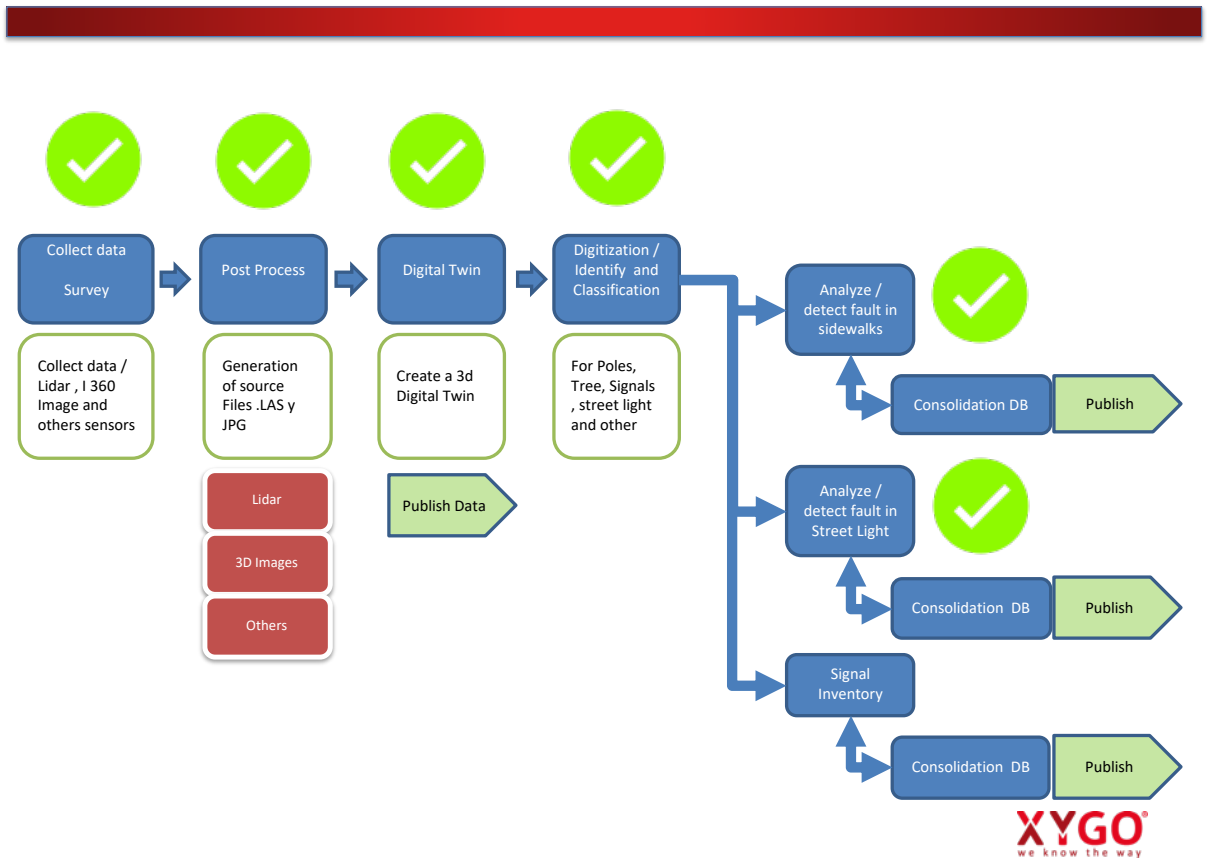
5 SERVICES

		Basic Service - Turnkey Inventory / Work Order Sidewalk Inspection			
			Setup	Signal Inventory	Work Order / SideWalk Inspection
1		**Survey areas and collect with movil and sensor all the study area the deliverables offered.**	One Time USD	One Time USD	USD / mile
	1.1	Survey , collect with Lidar Scanner, Image 360 (One day time, One nigth time, One sidewalk)		✓	✓
2		**Generation Digital Twin Model / Data Base**			
	2.1	Post Processing and project creation		✓	✓
	2.2	Integration of others data sources (city data bases)		✓	✓
	2.3	Process the collected data, classify, and analyses according the rules and specs for City of Doral		✓	✓
3		**Data Mining , Analyze**			
	3.1	Sidewalks Faults			✓
	3.2	Signal Inventory		✓	
	3.3	Public Lights Faults		✓	
4		**Publishing Platform**			
	4.1	Platform for Visualization, delivery, publish (Choose one alternative)			
		4.1.1. Cloud services	✓	✓	✓
		4.1.2. On Site City of doral Servers and data center (see the option section below)			
		4.1.3. Mix (Cloud and On site). To Be define			
	4.2	Config Reports	✓		

Digital Twin - Point cloud analysis 3d model , measurements accuracy 2 cms

6 ACTIVITIES AND REFERENTIAL DEADLINES

The project considers as a reference, the following task and times for its completion:



Some of the activities are in parallel, the total estimate days for each survey depend of the size of the section and the miles included. The schedule will be changed by weather conditions and/or permissions for collect.

7 COMMERCIAL TERMS

7.1 Prices

		Basic Service - Turnkey Inventory / Work Order Sidewalk Inspection			
			Setup	Signal Inventory	Work Order / SideWalk Inspection
1		**Survey areas and collect with movil and sensor all the study area the deliverables offered.**	One Time USD	One Time USD	USD / mile
	1.1	Survey , collect with Lidar Scanner, Image 360 (One day time, One nigth time, One sidewalk)		✓	✓
2		**Generation Digital Twin Model / Data Base**			
	2.1	Post Processing and project creation		✓	✓
	2.2	Integration of others data sources (city data bases)		✓	✓
	2.3	Process the collected data, classify, and analyses according the rules and specs for City of Doral		✓	✓
3		**Data Mining , Analyze**			
	3.1	Sidewalks Faults			✓
	3.2	Signal Inventory		✓	
	3.3	Public Lights Faults		✓	
4		**Publishing Platform**			
	4.1	Platform for Visualization, delivery, publish (Choose one alternative)			
		4.1.1. Cloud services	✓	✓	✓
		4.1.2. On Site City of doral Servers and data center (see the option section below)			
		4.1.3. Mix (Cloud and On site). To Be define			
	4.2	Config Reports	✓		
		Total of services (Base functionality)	**12,000.00**	**39,250.00**	**475.58**

	Options		
	Publishing Platform	One Time USD	monthly USD
	On Site City of doral Servers and data center		
	Licences Orbit Publisher and other (purchase , one time)	13,500.00	
	Licences Orbit Publisher and other (annual maintenance)		250.00
	Licences ArcGis Online. (**)		208.00
	Cloud (Datacenter)		2,300.00

7.2 Commercial Conditions

This section describes the commercial scope of the proposal.

- The services have three components. One of them is all activities and supplies needed to get the service/platform up and running (Setup / Licenses) the cost of these part are for one time.
- The second is the full signal inventory for collecting and processing the data to deliver the new datasets of signals and asset inventory of the city

- The Third part is the sidewalk inspection, the City purchase on demand work order for make the services in a specific sections or areas
  .
- Our proposal to implement a platform include the Cloud option. We list in Options the prices for specific components for supply in the On-Site options, the cost for all others components needs in Onsite options is city charge.

Publish

- **Cloud Service** the uptime proposed is 99%
- 5 concurrent users are contemplated in the Orbit publisher

License

- Relational databases are not contemplated in the service.
- The license values are referential, they must be updated once the proposal is accepted

8 PAYMENT CONDITIONS

1.- SETUP

- 50% at start the project, together with the purchase order
- 50% at the end of setup

2. Inventory Service

- 50% at start the project, together with the purchase order
- 50% at the end and published the inventory.

3.- Sidewalk Inspection (Work Orders)

- 50% at start the work, together with the work order
- 50% at the end with the delivery data sets.

9 CURRENCY

It will be invoiced in the national currency, according to the value of the exchange rate (USD American Dollars) of the billing day.

10 THE TAXES

To all the above values, the corresponding taxes should be added.

11 EXCLUSIVITY AND CONFIDENTIALITY

This proposal does not consider exclusivity in the services offered by XYGO USA.

It does consider the confidentiality that corresponds to **City of Doral** information and business rules identified as company own.

12 VALIDITY OF THE PROPOSAL

The period of validity of the proposal is 60 days.

13 DATA FOR PURCHASE ORDER

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APPENDIX A

TABLE Inventory element

List Inventory elements
Street Name Signal
Bike Lane Ends Signal
Bike Lane Signal
Bus Stop
Roundabout directional signal
Circular intersection warning signal
Divided highway
Do not enter signal
End of Road Object Marker
Keep right signal
No entry Signal
No Parking Signal
No right turn
No thru trucks signal
No U-turn
One Way signal
Pedestrian crossing signal
Pet waste
Slow Children Playing signal
Speed advisory signal
Speed Limit Signal
Stop Signal
Tow-Away Zone Signal
Warning signal
Yield signal


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