Attachment A - Scope of Services

This Scope of Services (SOS) is entered into by and between the County of San Bernardino (County) and Cartegraph Solutions, LLC. (Contractor) to establish terms and conditions applicable to the implementation field Services (Services) required for the Asset Maintenance Management and Capital Improvement Project Planning Solution (System) to meet the business requirements of the County. The Services are subject to the limitations set forth in the Attachment D Solutions Agreement.

A. DEFINITIONS

A.1 ArcGIS Online (AGOL): Earth Science Research Institute (ESRI) geographic information system (GIS) County standard for geodatabase interoperability.

A.1 California Manual on Uniform Traffic Control Device (CA MUTCD): Provides uniform standards and specifications for all official traffic control devices across California. CA MUTCD codes may differ or conflict with federal standards.

A.2 Cartegraph Operations Management System (OMS or System): The System that provides and controls asset maintenance management, work, requests, resources and planning functionality inclusive of supporting applications.

A.3 Cost Accounting Management System (CAMS): The County maintains a SQL based cost accounting system, WinCAMs, that provides cost reporting to stakeholders and funding sources.

A.4 County Maintained Road System (CMRS): The transportation network within County jurisdiction and maintenance responsibility area.

A.5 Functional Objectives: The stated and specific intentions for how this project implementation will meet County business needs.

A.6 Implementation Objectives: The stated and specific intentions for how the System features will be configured to meet County business needs.

A.7 Pavement Condition Index (PCI): A numerical index that indicates the statistical measure of the overall condition of a segment of paved road.

A.8 Technical Requirements: The stated technical and environment specifications that will support the installation and utilization of the System to meet Implementation and Functional Objectives.

B. PROJECT DESCRIPTION

B.1 Background Information

The County has selected the Contractor's solutions for comprehensive location-based System to more efficiently plan, manage and monitor its road asset and flood control asset maintenance operations and capital improvement programs. To that end, this Scope of Services provides Key Functional, Implementation, and Technical Objectives that will guide the System set-up and implementation Services.

B.2 Project Overview

The County intends to host a SQL-based system, deploy on-premise and manage system maintenance, integration with the County's AGOL geodatabase, licensing and user permissions, common configuration tasks and reporting functions with County staff resources. This Scope of Services outlines how the County will partner with the Contractor to ensure that execution of the Project Plan will meet the complete range of required functionality to enable the System to:

B.2.1 Integrate natively to current standards of ArcGIS Online ESRI products and provide bi-directional edit capabilities directly to and from the Enterprise AGOL database.

B.2.2 Meet the Functional, Technical and Implementation requirements by configuring the existing commercial off-the-shelf software.

B.2.3 Provide access to System data for report and query generation without the need for a programming specialist.

B.2.4 Provide mobile technology for field crew end-users with limited connectivity.

B.2.5 Track specific assets, including the ability to track condition attributes, work and maintenance history, cost of maintaining the asset and asset lifecycle management.

B.2.6 Support mobile external (Citizen) and internal request management integration.

The Contractor shall be responsible for the final County-approved design, installation, implementation and commissioning of the Solution; including development of user acceptance testing, system integration and connectivity to existing resources, per **Article C – Implementation Tasks, Deliverables and Assumptions** of this SOS.

B.3 Key Functional Objectives

The following represents an overview of the essential software, system architecture, configuration and reporting objectives to guide implementation:

B.3.1 Work Management Solution should provide the organization with the ability to:

- Create and complete work associated to both assets and non-assets
- Create, assign, prioritize, reschedule, and complete work activities
- Associate multiple requests and tasks to work orders
- Project activities/scenarios with their cost, to maximize the life of assets
- Generate auto-notifications via email related to assigned and completed work

B.3.2 Asset Management Solution should provide the organization with the ability to:

- Create and modify asset inventories and track asset attributes with AGOL
- Associate asset to master/parent assets such as road segment and/or flood facility
- Assign performance curves to track asset condition, criticality, and useful life
- Trigger work, task or inspection based on condition, time, and usage
- Associate asset to requests, tasks, work order

See Exhibit 3 – Required/Recommended Data Attributes

B.3.3 Request Management – Citizen Reporting Solution should provide the ability to:

- Intake location-based requests from citizens through website and mobile applications for Android and iOS devices
- Validate requests against jurisdictional boundaries and provide rules-based request management for those outside of County responsibility areas
- Identify/avoid duplicate or redundant requests

B.3.4 Planning – Scenarios and Work Order Management should be configured for:

- Roll-up of work order activities for project/program level cost and progress tracking
- Review of costs versus completion status to monitor and manage project
- Tracking and reporting on budget - projected versus actual expended
- Generate real-time project/program status reporting by
    i. Funding source
    ii. Polygon area (Community, District, Maintenance Yard)
    iii. Asset, Asset type
- Monitor overall five-year capital improvement project budget utilization and status by funding source, phase and/or milestone.

B.3.5 Resource Management should:

- Track labor, equipment, and materials costs
- Allow for multiple labor rates
- Schedule shared equipment resources
- Expense equipment in either time or miles
- Create and modify routing for priority and efficiency
- Manage materials based on location
- Track material orders and location transfer
- Generate auto-notifications for material reorder alerts

B.3.6 Cartegraph One/Cartegraph for iPad should allow field staff to:

- Perform request tracking, update work, and inventory assets in the field
  Create and complete work, enter resources, create assets, and edit existing assets and attributes from mobile applications
- Ability to configure data in mobile application
- Offline capability for iPad application with robust data syncing

B.3.7 Reporting and Exporting Data option(s) should include:

- Standard reports out-of-the-box
- Ability for users to create and edit reports, field-level queries, sorts, and reports
- Tool for exporting reports or queries to MS Excel and/or Comma Separated Values
- Ability to view/add/edit/remove custom widgets for dashboard reporting

B.4 Key Technical Requirements

The following represents an overview of the essential software, system architecture, configuration and reporting objectives to guide implementation:

B.4.1 Server Environment specifications:

- On premises hosting in SQL Server environment
- Local control of database configuration
- Roles-based user administration with Active Directory integration

B.4.2 ESRI ArcGIS Online Integration requirements:

- Seamless two-way integration to County Enterprise AGOL
- Maintain version compatibility no less than 2 updates behind ESRI's most recent enterprise release
- Write directly to ESRI geodatabase publishing workflow

B.5 Key Implementation Objectives

The following represents an overview of the essential software, system architecture, configuration and reporting objectives to guide implementation:

B.5.1 Parent Asset Types require all labor, equipment and material costs to their associated Child Assets to roll up to the parent segment or facility. **See Exhibit 1 – Assets**.

B.5.1.1 CMRS Roads / Pavement Segments

B.5.1.2 Flood Control Facilities

B.5.2 Traffic Control Device Assets require classification by and must reference the most recent version of CA MUTCD codes. The County must be able to update the codes as revisions are periodically issued by the California Department of Transportation. **See Exhibit 1 – Assets**.

B.5.3 Vehicles and Equipment are to be configured as both **assets** (require maintenance that *accumulate* cost) and **resources** (used to maintain other assets and *generate* cost).

B.5.4 Cost Accounting Integration will require configuration of the System to align with resources, geographical areas and funding sources.

B.5.6 Future Construction Project Management System integration will require alignment with the Solutions. **See Exhibit 2 – Data Model**

C. IMPLEMENTATION TASKS AND DELIVERABLES

Implementation of the Operations Management System (OMS) includes the following professional Services:

C.1 Task 1 – Project Management

An asset, operations and project/program management vision derived from internal stakeholder input and backed by department leadership will be collaboratively developed and adopted to guide project decision making. Upon acceptance of a Project Plan, developed in consultation with County public works staff, the successful Contractor will be required to commit to an agreed upon timeframe and author, edit, review and distribute project documentation and technical reports as needed. The project plan shall identify the Project Manager and team members.

C.1.1 The Contractor shall provide a three day provide a three-day (3-day) onsite requirement gathering workshop to increase understanding of County business and functional goals.

C.1.2 The County shall work collaboratively with Contractor to standardize data elements needed to meet County business needs and implement best practices for OMS, AMS, Cost Accounting and AGOL integration.

Deliverables to be collaborated on, reviewed and approved by the County:

C.1.2 Detailed Project Plan consistent with this Scope of Services.

C.1.3 Shared project collaboration website with access permissions for key County staff.

C.1.4 Project schedule with milestones and task completion expectations.

C.1.5 County resource commitment levels.

C.1.6 Detailed brief including any challenges as well as recommendations for OMS best practices relevant to the implementation.

C.1.7 Weekly status report format, indicating percentage of completion for each deliverable.

Assumptions

C.1.8 Contractor will not exceed the total for Professional Services as defined in **ATTACHMENT B – Schedule of Fees** of this Contract without written approval from the County. In the event that additional Service will be needed due to any changes in the terms of this SOS, Contractor will notify County prior to exceeding the approved Services.

C.1.9 Implementation of any custom modification or integration developed by Cartegraph, your internal staff, or any third-party is not included in the scope of this project unless specifically listed herein.

C.1.10 Data conversion services from other software system(s) or sources are not included in the scope of this project unless specifically listed herein.

C.1.11 Any service items discussed during demonstrations, conference calls, or other events are not included in the scope of this project unless specifically listed herein.

C.2 Task 2 – Test Plan

A test plan is essential for system implementation success. The test plan shall be a component of the initial Project Plan and evolve and be defined as the project progresses, with any significant items to have defined test cases designed for technical staff and end-user to provide actionable

feedback. The test plan is expected to remain within the scope of this Scope of Services and the Project Plan and address Key Functional, Technical and Implementation Objectives.

3 Task 3 – Report Development

The County expects that out-of-the-box reporting features will be robust and meet most needs. Reporting needs that are not met by the out-of-the-box system drive custom configuration. The Contractor will be required to actively work to meet any configuration challenges identified during Report requirements gathering and scoping.

Contractor will configure and provide the following custom reports:

C.3.1 Up to fifteen (15) custom reports to be determined within the implementation

County will provide:

C.3.2 Sample reports or mockups to assist Contractor with requirements gathering

Deliverables to be collaborated on, reviewed and approved by the County:

C.3.3 Report designs for 5 high complexity reports and 10 medium complexity reports

C.3.4 Any table modifications needed to meet design specifications.

C.4 Task 4 – System Set-up, Installation and Configuration

Task implementation is expected to remain within this Scope of Services and the Project Plan. Configuration needs that are out-of-scope must be clearly communicated by the Contractor and change orders issued and approved prior to proceeding with out-of-scope work. The intent of the County is to rely on off-the-shelf functionality, with a moderate amount of customization.

Contractor shall:

C.4.1 Provide a review, typically up to two (2) hours, of our technical specifications with your technical staff to answer any questions and verify your environment is ready for the software's installation.

C.4.2 Guide County technical staff through the installation and setup of Cartegraph software in Test and Production environment.

C.4.3 Provide an overview, up to two (2) hours, of OMS and AGOL user-based logins and User/Role functionality.

C.4.4 Provide a template file to be utilized to populate Roles and Users for OMS.

C.4.5 Utilize the template to create initial users and roles in OMS. Subsequent users and roles changes/additions/maintenance shall be County responsibility.

C.4.6 Provide documentation and guidance, up to four (4) hours, for County technical GIS staff to configure Esri Basemap Services for OMS integration. Guidance will be geared towards OMS/AGOL integration functionality and requirements.

C.4.7 Setup the OMS System, including the Internal and Citizen Request, Work, Resource, and Asset Management areas of the software.

Deliverables to be collaborated on, reviewed and approved by the County:

C.4.8 Custom templates for data loads to be performed in **C5. Task 5 – Data Services**

Assumptions, Requirements and Considerations acknowledged by the County:

C.4.9 Asset Management solutions will be setup for all solutions referenced in **Exhibit 1 - Assets**.

C.5 Task 5 – Data Services

Contractor will provide data services as defined in project planning for data dictionary, data mapping and conversion strategies.

C.5.1 Contractor shall perform one test and one production data load service through standard import/export functionality for standardized data sets including:

C.5.1.1 Parent level asset records such as Flood Control Facilities and Road Segments

- Spatial (x,y) location attributes
- Key dates

C.5.1.2 Second level asset records such as Traffic Control, Stormwater, Channel & Basin components

- Spatial (x,y) location attributes
- Key dates

C.5.1.3 Standard system libraries

C.5.2 Using templates developed in **Task 4 – System Set-up, Installation and Configuration** populated by County Public Works staff, Contractor will load the data into the test or production environment for data sets configured to integrate with existing systems including:

C.5.2.1 Parent level resource records

- Labor (Staff)
- Equipment
- Material
- Vendor

C.5.2.2 Resource rates

- Applied labor
- External labor
- Applied equipment
- External equipment
- Material

C.5.2.3 Additional cost accounting elements

- Activities
- Workorders

C.5.2.4 Additional system libraries that interact with or are impacted with reporting, interface and capital project management goals defined within this SOS.

C.5.3 Contractor will provide the following data services to load County pavement data and traffic asset data into Cartegraph OMS. In order to complete this critical task successfully, Contractor shall:

C.5.3.1 Provide a template file to third-party vendors, so that traffic asset and pavement data can be delivered in the required format.

C.5.3.2 Provide a review, not to exceed two (2) hours, of OMS data requirements to County and third-party vendor staff.

C.5.3.3 Provide a field map review, not to exceed two (2) hours, to identify the OMS destination fields for up to 10 additional data attributes which may have been collected.

C.5.3.4 Provide a one-time data load into the customer's test environment.

C.5.3.5 Provide a one-time data load into the customer's production environment.

Assumptions, Requirements and Considerations

C.6 The County acknowledges that the following constraints apply to the scope of data services to be provided by Contractor. For further detail on field mapping see **Exhibit 3 – Required / Recommended Data Attributes.**

C.6.1 This SOS is isolated to data load activities and does not include any manipulation of collected data.

C.6.2 If Pavement spatial data is not provided, and does not currently exist in the customer OMS database, Contractor will load Pavement condition data without impacting the existing spatial implementation.

C.6.3 Prior to collection efforts, third-party vendors must ensure collected data can be linked to a Cartegraph OMS Pavement ID.

C.6.4 Cartegraph OMS calculates PCI values based on the ASTM-6433-11 – Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys standard. Data collection firms are required to provide Distress, Severity, and Extent values as specified by the aforementioned standard.

C.6 Task 6 – Training

The training plan shall be a component of the initial Project Plan, then evolve and be defined as the project progresses. Training is expected to be roles-based with realistic permissions in place. Training is expected for technical staff as well as supervisors. End-user training will be accomplished by the Contractor using the 'train-the-trainer' methodology during initial implementation. To avoid redundancy, and to utilize service time efficiently, training may cover a subset of the assets listed in Exhibit 1 - Assets.

Contractor shall provide training for:

C.6.1 Overall System Navigation and Functionality: Remote train-the-trainer training, up to four (4) hours, to familiarize staff with the software environment and its common functions. Training topics shall include:

C.6.1.1 Login/Permissions
C.6.1.2 Dashboards
C.6.1.3 System Navigation including Requests, Work, Assets, Resources, Reports, and Administrator Tabs
C.6.1.4 Layers, Filters, Maps
C.6.1.5 Grids and Views with List and Detail
C.6.1.6 Standard Reports
C.6.1.7 Attachments

C.6.2 OMS ESRI AGOL Integration Functionality: Remote train-the-trainer training, up to two (2) hours. Training topics shall include:

C.6.2.1 OMS ESRI integration configuration options
C.6.2.2 Integration functionality (basemap and feature)
C.6.2.3 Overall ESRI AGOL integration requirements, considerations, and Cartegraph recommended best practices.

C.6.3 Onsite Three-day (3-day) "train-the-trainer" Training Event: Onsite training agenda will be defined and agreed upon by Contractor and County Project Manager. Topics may include:

C.6.3.1 Request Management
C.6.3.2 Work Management
C.6.3.3 Asset Management
C.6.3.4 Resource Management
C.6.3.5 Cartegraph for iPad and Cartegraph One
C.6.3.6 Administrator

C.6.4 OMS Reporting Functionality: Remote train-the-trainer training, up to ten (10) hours. Training topics shall include:

C.6.4.1 Security Roles
C.6.4.2 Report Designer: Report Types, Report Styling, Filtering\Parameters, Basic Formulas, Grouping/Sorting
C.6.4.3 Report Viewer
C.6.4.4 Reporting best practices, solution tips/tricks

C.6.5 SeeClickFix Request Functionality: Remote train-the-trainer training, up to eight (8) hours. Training topics shall include:

C.6.5.1 Administrator functions
C.6.5.2 Web-Based Customer Relationship Management (CRM)
C.6.5.3 Recommended best practices for citizen engagement and request management
C.6.5.4 Supporting services related to mobile app configuration and citizen engagement marketing materials.

C.6.6 Advanced Resources Functionality: Remote train-the-trainer training, up to twelve (12) hours. Training topics shall include:

C.6.6.1 Material Locations
C.6.6.2 Material Transfers
C.6.6.3 Material Orders
C.6.6.4 Settings; Vendor Price Quotes, Re-order points
C.6.6.5 Recommended best practices for advanced resource management

C.6.7 Advanced Asset Functionality: Remote train-the-trainer training, up to eight (8) hours. Training topics shall include:

C.6.7.1 Preventive Maintenance
C.6.7.2 Performance Management
C.6.7.2.1 Prediction Groups
C.6.7.2.2 Minimum Condition Groups
C.6.7.2.3 Activities and Impacts
C.6.7.2.4 Criticality Factor
C.6.7.2.5 Install/Replaced Dates
C.6.7.3 Recommended best practices for advanced asset management

C.6.8 Advanced Work Functionality: Remote train-the-trainer training, up to sixteen (16) hours. Training topics shall include:

C.6.8.1 Scenario Builder Settings
C.6.8.1.1 Prediction Groups
C.6.8.1.2 Minimum Condition Groups
C.6.8.1.3 Activities and Impacts
C.6.8.1.4 Criticality Factor
C.6.8.1.5 Install/Replaced Dates
C.6.8.2 Scenario Builder Scenarios
C.6.8.2.1 Scenario Types
C.6.8.1.2 Plan Years and Budgets
C.6.8.1.3 Data Exports
C.6.8.3 Recommended best practices for advanced work management

Deliverables to be collaborated on, reviewed and approved by the County.

C.6.9 OMS Test Environment: Installed on County server with all modules enabled and connected to test AGOL environment, Cartegraph for iPad and SeeClickFix

C.6.10 Training Plan: Schedule for remote sessions and agenda for On-Site Training

C.7 Task 7 – Extended End User Training

The training plan shall be a component of the initial Project Plan, then evolve and be defined as the project progresses. Contractor shall provide:

C.7.1 One (1) separate three-day (3-day) onsite event for end user training. The agenda will be defined, and agreed upon by the County and Contractor Project Managers. Topics may include:

C.7.1.1 Project or implementation consulting
C.7.1.2 System configuration
C.7.1.3 Training

County acknowledges that training for Assets not listed in **Exhibit 1 – Assets** will not be provided within this Scope of Services.

C.8 Task 8 – User Acceptance and Initial Go-live Support

A well-implemented system is the overall goal of this Scope of Service. The user acceptance testing and go-live plan shall be a component(s) of the initial Project Plan, then evolve and be defined as the project progresses.

Contractor shall provide:

C.8.1 One (1) separate three-day (3-day) onsite event for go live support. The agenda will be defined, and agreed upon by the County and Contractor Project Managers. Topics may include:

C.8.1.1 Refresher training for items within this Scope of Services
C.8.1.2 Software and process support for staff during production roll-out
C.8.1.3 Field, layout and report configuration guidance

Deliverables to be collaborated on, reviewed and approved by the County:

C.8.1.3 User acceptance testing action items
C.8.1.4 Go-live plan

C.9 Task 9 – Integration Services

Contractor will provide the following standard, bi-directional (two-way) integration to WinCAMs Cost Accounting Management System (CAMS). For additional detail see **Exhibit 2 - Data Model**.

C.9.1 The standard integration between WinCAMs and Cartegraph OMS includes the following integration points:

C.9.1.1 CAMS Project Ledger will be brought in as a Work Order in OMS via a flat file.

- New/modified WinCAMs project data will flow to OMS Work Order
- Initial data load is referenced in **C.5 Task 5 – Data Services**

C.9.1.2 CAMS Employee Assignment (Job Class) and Rate detail will be brought in as Labor Records and corresponding Labor Rates into OMS using a unique identifier via flat file.

- New/modified CAMS Employee Master Assignment (Job Class) and Rate detail will flow to Cartegraph for scheduled import to update OMS Resources.
- Initial data load is referenced in **C.5 Task 5 – Data Services**

C.9.1.2 New and/or modified CAMS Equipment Master records and rates will be brought into OMS Assets and OMS Resources using a unique identifier via flat file.

- Initial data load is referenced in **C.5 Task 5 – Data Services**

C.9.13 Cartegraph Labor Logs, Equipment Logs, and Material Logs will be exported to separate CSV files on a daily or weekly basis and WinCAMs will import the files into their system.

- Contractor will build up to three (3) automations to assist with the Log Exports.

Assumptions

C.9.2 The County and Contractor each acknowledge that the Data Integration scope of services included in this SOS include the following assumptions:

C.9.2.1 The integration includes up to twelve (12) fields in per integration point.
C.9.2.2 Contractor will provide an error logging capability to easily identify potential integration issues.
C.9.2.3 Contractor will provide a customer-configurable time interval to manage integration frequency.

C.9.2.4 Contractor is not responsible for Task Creation on the Work Orders created by the Project Ledger import.
C.9.2.5 CAMs has a manual or scheduled process to export/import the flat files that are part of this integration.

Exhibit 1 - Assets

Cartegraph will provide installation and training on the following asset types:

Transportation Domain

1) Bridge
2) Light Fixture
3) Marking
4) Pavement
5) Pavement Area
6) Sign
7) Support
8) Guardrail
9) Curbs
10) Medians

Signals

1) Signal Cabinets
2) Signal Controllers
3) Signal Heads
4) Signal Monitors
5) Signal Preemption
6) Signal Traffic Cameras
7) Signal Traffic Detectors
8) Signalized Intersections

Walkability

1) Sidewalk
2) ADA Ramps
3) Fence

Flood Control Domain

1) Floodwall
2) Flood Levee Embankment
3) Flood Pump Station
4) Flood Protection Pump
5) Flood Protection Generator
6) Flood Protection Gate
7) Down Ramps
8) Gauges and Recording Units

Stormwater

1) Storm Basin
2) Storm Channel
3) Storm Culvert
4) Storm Facility
5) Storm Inlet
6) Storm Manhole
7) Storm Outlet
8) Storm Pipe
9) Storm Pump

Cartegraph will provide up to five (5) field configurations for each asset type listed above.

Exhibit 2 - Data Model

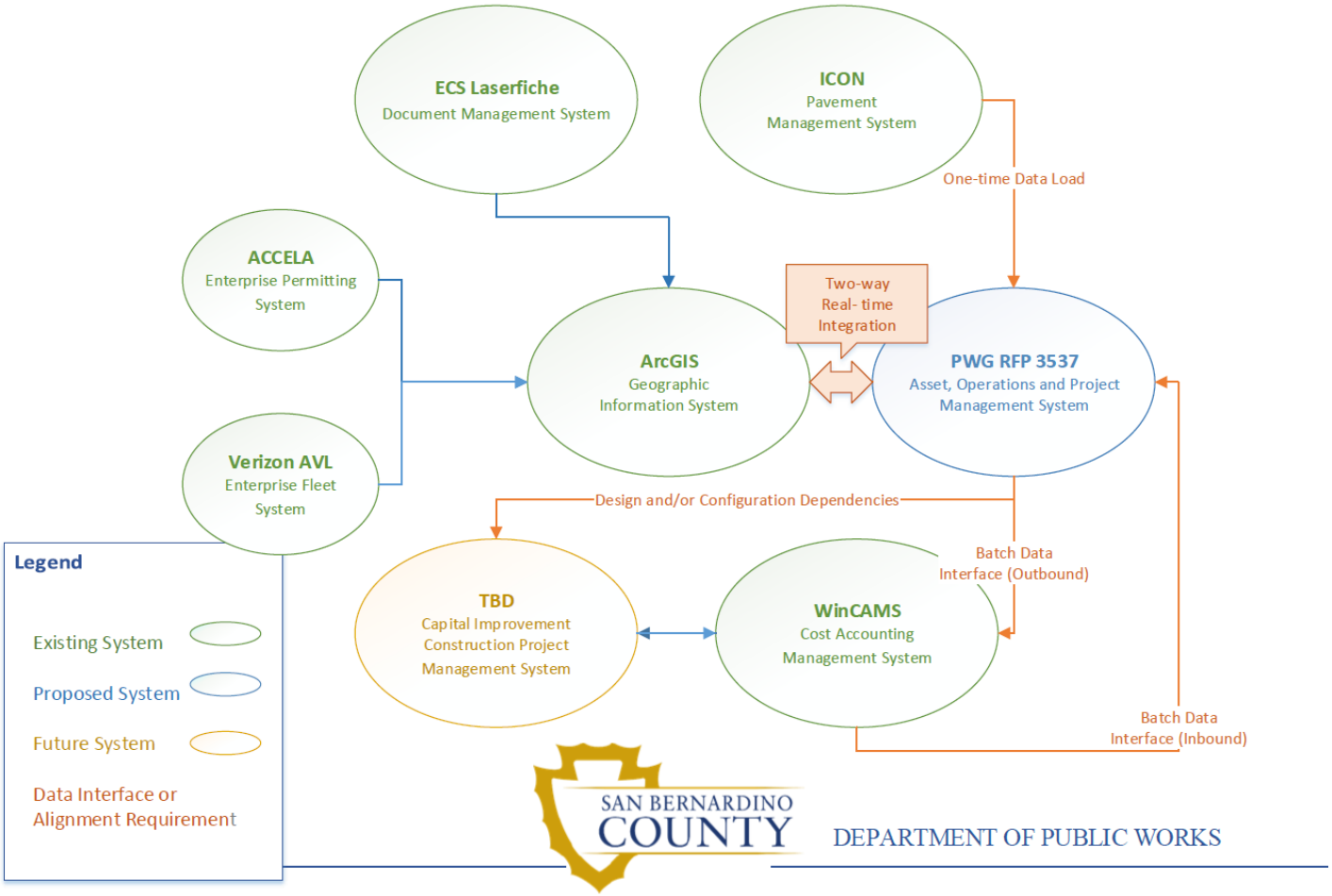

Exhibit 3 Required / Recommended Data Attributes

PAVEMENT INVENTORY TABLE			
NAME	**DATA TYPE**	**DESCRIPTION**	**NOTE**
Cartegraph ID *	**Text**	**Unique identifier for Cartegraph pavement (section) record.**	This ID will be used to link all associated roadway section related tables
Pavement Length*	**Quantity (number w/unit)**	**Length of pavement section**	Quantity fields require two data cells per row: 1 Number value and 1 Unit of Measure (m, km, mi, yd)
Pavement Width*	**Quantity (number w/unit)**	**Width of pavement section**	Quantity fields require two data cells per row: 1 Number value and 1 Unit of Measure (m, km, mi, yd)
Pavement Classification*	Text (Lookup)	Pavement Classification value for Cartegraph Pavement record	Default values: -Asphalt -Brick and Block -Concrete -Earth -Gravel
Function Classification*	Text (Lookup)	Functional Classification value for Cartegraph Pavement record	Default values: -Rural Arterial -Rural Collector -Rural Local -Urban Arterial -Urban Collector -Urban Local
Street	Text (Lookup)	Street name for Cartegraph Pavement record	
Street Ahead	Text (Lookup)	Street Ahead name for Cartegraph Pavement record	This refers to the intersecting street ahead (limits).
Street Back	Text (Lookup)	Street Back name for Cartegraph Pavement record	This refers to the intersecting street back (limits).
Construction Date	Date	Construction date helps establish a baseline for each asset	This baseline is crucial when managing condition and deterioration of high cost, high impact assets.

PAVEMENT DETAILED DISTRESS TABLE			
NAME	**DATA TYPE**	**DESCRIPTION**	**NOTE**
Cartegraph ID *	**Text**	**Unique identifier for Cartegraph pavement (section) record.**	This ID will be used to link all associated roadway section related tables
Inspection ID*	**Text**	**Unique identifier for Inspection Records**	
Sample ID*	**Text**	**Unique identifier for Sample Areas**	
Sample To	Integer	Identify the end of the Sample Area	
Sample From	Integer	Identify the beginning of the Sample Area	
Sample Length	Quantity with Unit		
Distress*	Text (Lookup)		Values must match distresses specified in the ASTM- 6433-11 standard
Severity*	Text (Lookup)	Default values: -Low -Moderate -High	
Extent	Number		Must be represented as a percentage number value

PAVEMENT INSPECTION TABLE			
NAME	**DATA TYPE**	**DESCRIPTION**	**NOTE**
Cartegraph ID*	**Text**	**Unique identifier for Cartegraph Pavement (section) record.**	This ID will be used to link all associated roadway section related tables
Inspection ID*	**Text**	**Unique identifier for inspections**	
Inspection Date*	**Date**	**Inspection date**	
Average IRI	Quantity with Unit	If applicable, a pre-calculated Average IRI value must be provided.	Average IRI value should be converted and provided in a 0 to 100 scale for use in Cartegraph's Overall Condition Index (OCI) calculation.

PAVEMENT CONDITION CATEGORY TABLE			
NAME	**DATA TYPE**	**DESCRIPTION**	**NOTE**
Cartegraph ID*	**Text**	**Unique identifier for Cartegraph Pavement (section) record.**	This ID will be used to link all associated roadway section related tables
Inspection ID*	**Text**	**Unique identifier for inspections**	
Condition Category	**Text (Lookup)**	A value that generally reflects a high-level condition using a 0 to 100 scale index.	Cartegraph OMS recognizes PCI as a Condition Category. IRI values provided in a converted 0 to 100 scale can be loaded as a Ride Condition Category thereby impacting the Overall Condition Index (OCI) value
Index	**Integer**	A value, on a 0 to 100 scale, which reflects the condition of the corresponding Condition Category	

Exhibit 4 – Responsibilities for Success

Customer/Cartegraph Responsibilities

Project representatives from Customer and Cartegraph accepts responsibility for all aspects of project planning, management, and execution not specifically identified as the responsibility of Cartegraph in the Agreement or in the Purchase Agreement. Ongoing management of the day-to-day allocation of Customer and Cartegraph resources and management of project tasks is the responsibility of the Customer and Cartegraph project representatives. Customer and Cartegraph project representatives will provide overall guidance and direction for the project and will direct the project accordingly. Further, and with regard to the Cartegraph obligations listed in this Purchase Agreement, Customer understands that it is vital to the success of the project that Customer provides assistance in the following matters:

1. For those services listed under Field Services, Cartegraph personnel will conduct information gathering and evaluation sessions with various Customer Users and management. While Cartegraph respects the time and workload of Customer staff, dedicated time on the part of the appropriate Customer resources is necessary to complete these exercises.
2. The installation process requires the assistance of Customer personnel and suitable access to hardware and systems (e.g., security clearance). Customer is required to supervise the installation process while systems are accessible to Cartegraph. All hardware and software, for both personal computers and servers, is expected to be available, installed, and operating as specified in Cartegraph's system requirements documentation such that delivery and execution of Cartegraph Field Services will not be impeded.
3. Customer and Cartegraph understand that the successful performance of Field Services depends upon Customer fulfilling its responsibilities. The Project assumes that Customer will provide all personnel required to achieve a successful implementation, including a dedicated project manager responsible for reviewing the implementation scope of work, ensuring all attended meetings are attended by invited staff, and providing leadership and insight on all relevant internal issues such as policy/procedure, organizational structure, project stakeholders, technical architecture, data, and current systems. Customer responsibility also includes internal documentation, internal change management, task completion, staff coordination and schedule commitment.
4. Customer will provide Internet access and IT staff support as required. For those services that are web-based, Cartegraph utilizes WebEx Meeting (or similar) technology.
5. Customer shall ensure that their workstation platform and database meet Cartegraph system requirements as specified in the Cartegraph System Requirements documentation. Solutions will be supported within new versions of these workstation platforms and databases within a reasonable period of time from their release from their manufacturer. Cartegraph will discontinue support of its Solutions within older versions of these workstation platforms and databases as their support is discontinued by their manufacturers.
6. Customer agrees to work with Cartegraph to schedule Field Services in a timely manner. All undelivered Field Services shall expire 365 days from the execution of this Purchase Agreement, unless noted differently in Services Scope listed above. Upon expiration of services, the project may be cancelled at Cartegraph's discretion.