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| FORM N: WFPS\_Resource Deployment\_Requirements |
| Instructions for filling out Form N: Proponent Proposal - Requirements   1. Complete Form N: Proponent Proposal - Requirements 2. Follow the proposal instructions in the Proposal Instructions section below |
| **PROPOSAL INSTRUCTIONS**   1. **For each requirement indicate which Proponent response code that best describes the proposed scope of your solution:**   **Y – Available Out of the Box:** the solution for the requirement is currently available in the existing product “out of the box”. Configuration may be required to enable the feature (requirement will be met through changes to settings of tables, switches, and rules without modification to the source code). Requirement is installed and operational at other sites and can be demonstrated to the City of Winnipeg.  **C – Available via Customization:** the solution for the requirement is not currently available in the existing product “out of the box”, but will be incorporated via customization of the solution components. Requirement will be met through changes to the source code which would require analysis and re-application during updates, upgrades, or when applying software patches.  **F – Future Availability:** the solution for the requirement is not currently available, but will be available in an upcoming planned product release. If this option is indicated, include the date/timeframe when the requirement will be available for implementation, which should be either:   1. A planned release up to 3 calendar months after the RFP 69-2018 competition close date, where an additional Proponent response code of **3** should be provided; 2. A planned release up to 6 calendar months after the RFP 69-2018 competition close date, where an additional Proponent response code of **6** should be provided, or 3. A planned release up to 12 calendar months or longer after the RFP 69-2018 competition close date, where an additional Proponent response code of **12** should be provided.   **3 – Third Party Supplied:** the solution for the requirement is expected to be met by using a third party vendor’s existing product, either integrated or non-integrated.  **N – Not Possible:** the solution for the requirement will not be provided by the Proponent.  3. For each requirement in which the City has noted as “Please Describe”, and/or asked specific questions, Bidder shall include additional information, referencing the specific Ref #, at the end of the section and/or as appendices. **Ref # is highly important to ensure linkage between requirement and description.**  **Notes:**   1. An omitted response will be assumed to be the same as a response code of “N”. 2. Any deviation from the response code will be re-coded at the discretion of the City of Winnipeg.   Responses of Y, C, F and 3 to all the requirements assume the requirement is in the scope of the Proponent’s proposal and will be included in a budget proposal. |

| **Requirement Description** | **RFI**  **Ref#** | **Proponent Response (Y, N)** |
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| 1. **System Status** | | |
| The solution should provide deployment recommendations in real-time to dispatch centre staff. | S.1 |  |
| Capable of using multivariate optimization algorithms to assist with resource deployment (system status management) using evidence-based methodology. The solution should deliver efficiency and ooperational advantages when employed throughout the EMS and Fire deployment. | S.2 |  |
| The solution should mitigate unnecessary unit movement throughout the system to achieve value-added coverage capacity. | S.3 |  |
| Coverage should be based on a variety of criteria including unit type and skills of personnel associated to that unit. Resource management should consider unit or apparatus 'type'. For example, a Primary Care Paramedic versus an Advanced-Care Paramedic, a fire pumper versus a rescue unit etc. | S.4 |  |
| The solution should intelligently deliver travel route recommendations to achieve the recommended deployment decisions. | S.5 |  |
| The solution should intelligently deliver deployment recommendations throughout the region by using historical event data to forecast preferred coverage configurations. | S.6 |  |
| The solution should intelligently deliver deployment recommendations that vary by time-of-day, day-of-week, and time-of-year by using historical event data to forecast preferred coverage configurations. | S.7 |  |
| The solution should intelligently deliver deployment recommendations that are developed to support special events including large celebrations such as parades or music festivals. | S.8 |  |
| The solution should consider deployment strategies for resources used for 9-1-1 coverage so they are in the best locations during their unassigned time to meet targeted performance objectives including response intervals. | S.9 |  |
| A mechanism may be available to prevent any unit from moving beyond a specific distance from their normal coverage area. | S.10 |  |
| The solution should consider deployment strategies for dedicated patient transfer resources so they are in the best locations during their idle time to meet the lowest cost delivery of the system. | S.11 |  |
| The solution should have the ability to interface with CAD's recommendation and dispatch function and deliver unit assignment recommendations in order to achieve the best system outcomes. | S.12 |  |
| The solution should provide deployment recommendations in order to return crews back to their end-of-shift station in order to minimize overtime. Where late trips are unavoidable, recommendations to provide shift relief should be available. | S.13 |  |
| The solution should be able to plan and schedule breaks for crews if required. | S.14 |  |
| The system should be capable of moving a unit to a station (hall) or a 'post'. | S.15 |  |
| The solution should be able to plan and schedule other out-of-service time as required by the system including training requirements and planned vehicle maintenance. | S.16 |  |
| The solution should anticipate drive times leveraging existing GIS data (roads, boundaries, etc.). GIS data including road networks and historical AVL files will be available to the successful vendor. | S.17 |  |
| The solution should model drive times under different conditions (e.g. rush hour, seasonal, etc.). | S.18 |  |
| The solution should consider real time changes to the transportation (GIS) network from both internal and external data sources. This includes restrictions such as real time traffic patterns, road closures, major construction, restricted flight paths, weather/driving conditions, etc. | S.19 |  |
| The solution should validate and update all estimate workflow process intervals (e.g. chute, travel, scene, hospital, etc.) based on actual historical event data sourced from the CAD data warehouse (Microsoft SQL Server 2008 backend). | S.20 |  |
| The solution should use data from existing unit Automated Vehicle Locating (AVL) systems to dynamically ascertain specific resource locations as inputs when calculating system coverage capacity. | S.21 |  |
| The solution should be able to consider resources that are managed by a partner dispatch centre where unit location and status information are available via an interface. | S.22 |  |
| The solution should offer a mechanism to select units from the same location based on a preferred order (e.g. a community station with two or more scheduled resources will identify a specific order of unit assignment for coverage at different times of day). | S.23 |  |
| The solution should be capable of considering recent resource workload. For example, unit assignment should be constrained by fatigue management policies where it is not suitable to redeploy for coverage a crew that has been continuously tasked for an excessive period. | S.24 |  |
| The solution should be capable of restricting coverage assignment of certain unit classes (but not all) to certain daytime hours, notwithstanding a significant gain to system coverage capacity would be realized by activating these units during dark hours. | S.25 |  |
| The solution should take into consideration pre-defined minimum coverage requirements to avoid depleting coverage for planned upcoming IFT events. | S.26 |  |
| The solution should be configurable so there is a weighting for units to be assigned for coverage most often within the districts/regions they are most familiar with, but with due consideration of overall system performance. | S.27 |  |
| It should be configured to address other functional requirements based on other business rules that will be defined in concert with operational groups. | S.28 |  |
| The solution should recommend coverage assignments based on fixed deployment locations (most commonly stations) for the fleet of transport-capable resources. | S.29 |  |
| The solution should recommend coverage assignments based on a blend of fixed deployment locations and variable in-community locations for certain rapid response resources. | S.30 |  |
| The solution should clearly outline value-added data that the solution provides, such as flags or calculations for compliance, regional coverage capacity, unit availability, etc. | S.31 |  |
| The solution should allow data created via the application to be available to be extracted to a Data Warehouse. | S.32 |  |
| The solution should enable alerting and notification triggers which allow for ongoing situational awareness of the system state. This should include a clear articulation the required deployment assignment, the quantifiable impact of that decision, a graphical representation of the recommendation and impact (on a map), non-compliance with SSM post plans, etc. | S.33 |  |
| The solution should log the historical system evolution in a tool capable of replaying situations requiring investigation or more thorough analysis. | S.34 |  |
| The solution should be capable of replaying multiple units simultaneously based on their actual location. The solution should offer a video capture tool to support this functionality. | S.35 |  |
| When a unit is 'busy', the system may display the estimated time until the unit is available for dispatch. | S.36 |  |
| The system may allow the dispatcher to override the estimated availability time in order to make it longer or shorter based on external information. | S.37 |  |
| When a coverage gap is detected by the system, the system should recommend multiple options and the the most appropriate unit reallocation based on pre-defined business requirements. | S.38 |  |
| The dispatcher should be able to override the recommended unit reallocation and manually move units as required. | S.39 |  |
| The system may allow the dispatcher to enter comments when they override the recommended unit reallocation. | S.40 |  |
| The system may provide a mechanism for the dispatcher to 'test' specific resource allocation changes in order to see what the impact is. | S.41 |  |
| 1. **Modeling** | | |
| The solution should be able to accurately model realistic system performance impacts resulting from system configuration changes. | M.1 |  |
| The solution should be capable of considering demand and patient flow resulting from each of the core functional areas that create demand, including 9-1-1, IFT, and air ambulance. | M.2 |  |
| The solution should be able of configuring modeled process parameters in order to accurately reflect actual system performance under a set of system conditions. | M.3 |  |
| The solution should be able to output and summarize model results within a of set key performance indicators. | M.4 |  |
| The solution should apply an evidence-based methodology that can accurately model system performance of both current and theoretical states given various system configurations. Briefly explain the underlying methodology for calculating system performance (e.g. discrete event simulation, approximate hypercube model, etc.). Methodologies utilizing discrete event simulation are preferred. | M.5 |  |
| The solution should be capable of modeling system performance resulting from changes to station locations. | M.6 |  |
| The solution should be capable of modeling system performance resulting from changes to local deployment models including. | M.7 |  |
| The solution should be capable of modeling system performance resulting from changes to scheduled unit hours that may vary by hour-of-day and day of week. | M.8 |  |
| The solution should be capable of modeling system performance resulting from changes to operational service design, including common shift-designs. | M.9 |  |
| The solution should be capable of modeling system performance impacts resulting from changes to system demand, including demand under various conditions. | M.10 |  |
| The solution should be capable of modeling system performance impacts resulting from destination coordination activities. | M.11 |  |
| The solution should be capable of testing new business rules to be applied in reality by provincial dispatch centres (e.g. response plan variations, etc.) | M.12 |  |
| The solution should have clear data requirements for input elements including station locations, hospital locations, unit scheduling, road network, etc. | M.13 |  |
| The solutions should be able to model process variability in all intervals of the typical EMS and Fire workflows. | M.14 |  |
| The solution should describe the extent to which it is able to calculate input parameter values programmatically based upon data sourced from the EMS Data Warehouse (e.g. hospital intervals for Hospital 'X', chute intervals for assembled units responding from in-station, etc.), and if necessary whether these parameters can be overridden manually. | M.15 |  |
| The solution should be able to consider transport ratio variability (the probability of events responded to which require transportation to a hospital). | M.16 |  |
| The solution should be able to consider response parameters which include whether a unit responds with lights and sirens or responds observing normal traffic conditions. This is definable based on event type or event categorization. | M.17 |  |
| The solution should be able to model the 9-1-1 system, as well as the IFT system which includes both ground and air ambulance resources. Joint-use resources are predominant in the suburban and rural regions of the province. | M.18 |  |
| The solution should have the ability to consider and model both unplanned/urgent IFT activity, and scheduled IFT activity. | M.19 |  |
| The solution should have the ability to model wait-and-return type transfers where a patient should return to their originating site within a specified period. This will often require the transporting unit to wait at the destination site, or in other cases require a second unit to manage the return event. | M.20 |  |
| The solution should have the ability to model impacts resulting from appropriate unit assignment for IFT activity (e.g. ALS activity is only attributable to an ALS resource, low acuity patients assignable to non-ambulance transfer units). | M.21 |  |
| The solution should anticipate drive times leveraging existing GIS data (roads, boundaries, etc.). GIS data including road networks and historical AVL files will be available to the successful vendor. | M.22 |  |
| The solution should model drive times under different conditions (e.g. rush hour, seasonal, etc.). | M.23 |  |
| The solution should validate and update travel times based on actual historical data sourced from the CAD Data Warehouse and/or AVL logs. | M.24 |  |
| The solution should be able to test system performance resulting from changes to the road network, including closures, and attribute changes (e.g. construction impairing travel speeds). | M.25 |  |
| The solution should outline the process by which modeled performance is validated and reflects actual system performance once the solution is delivered. | M.26 |  |
| The solution should be capable of clearly articulating model outputs including process intervals (e.g. response intervals), unit utilization, and other measured values. | M.27 |  |
| The solution should be able to graphically represent performance using histograms so that the distribution of likely performance can be analyzed. | M.28 |  |
| The solution should be capable of outputting detailed, unaggregated response results, including unit timestamps. These results should be minable in text delimited format (.csv, .txt), or in a database table structure (Microsoft SQL Server preferred). | M.29 |  |
| The solution should be able to graphically represent the evolving system state on a map (e.g. simulated unit movement in response to events or throughout the system). A video-capture feature should also be offered within the solution. | M.30 |  |
| The solution should be able to thematically illustrate modeled system performance outputs and analysis spatially on a map. | M.31 |  |
| The solution should be capable of easily conducting sensitivity testing where the same model conditions can be tested under specifically-controlled variable changes. A method should exist for comparing these results. | M.32 |  |
| The solution should be able to save programmed scenarios as a configuration file so they can be accessed and retested in the future under new conditions. | M.33 |  |
| The solution should offer programmed optimization algorithms to test the best location for stations and scheduled ambulance units. | M.34 |  |
| 1. **Interface** | | |
| The system should be capable of interfacing with CAD solutions. | I.1 |  |
| The interface should be able to be configured as one-way only (CAD to Resource Reallocation Tool) or two-way. | I.2 |  |
| The interface should operate over standard IP-network. | I.3 |  |
| The system administrator should be able to configure the network ports that the interface will operate over | I.4 |  |
| 1. **Technical** | | |
| The font size, colour and type should be configurable by the system administrator. | T.1 |  |
| The system should operate on a standard industry-recognized operating system. | T.2 |  |
| The user interface should scale appropriately based on the size, orientation and screen resolution of the user device. | T.3 |  |
| Any Web App or Web Interface should operate in modern browsers including Safari, Firefox, Internet Explorer, Microsoft Edge, Google Chrome. | T.4 |  |
| Should be capable of operating in a Windows Server 2008 r2 or higher environment. | T.5 |  |
| The database should be on a standard industry-based database. | T.6 |  |
| The vendor should allow for annual upgrades of OS and DB. | T.7 |  |
| System backups should not negatively impact system performance. | T.8 |  |
| The vendor should provide the database schema, with annual updates. | T.9 |  |
| The vendor may provide the database dictionary. | T.20 |  |
| The vendor should provide detailed system administration documentation. | T.21 |  |
| The vendor should provide system administration training. | T.22 |  |
| The vendor should provide functional documentation. | T.23 |  |
| The vendor should provide functional test plans and test scripts. | T.24 |  |
| The vendor may provide load test scripts. | T.25 |  |
| The vendor should provide a system architecture diagram. | T.26 |  |
| The vendor should provide system administration training. | T.27 |  |
| The vendor should all for multiple environment test environments. | T.28 |  |
| There should be a database backup. | T.29 |  |
| There should be a failover capability. | T.30 |  |
| The system should support current industry standard infrastructure formats. | T.31 |  |
| Corporate | | |
| Vendor solution should be currently installed in departments of similar size and number of users. | C.11 |  |
| Vendor should provide support/work with standard vendors for various interfaces including CAD systems. | C.12 |  |
| Vendor should offer annual maintenance packages. | C.13 |  |
| Vendor should provide a warranty for the product/solution. | C.14 |  |
| Vendor may offer an extended warranty. | C.15 |  |
| Vendor may support/provide a user conference. | C.16 |  |
| Vendor may support/provide a Canadian user conference. | C.17 |  |
| Vendor may support a regional user conference. | C.18 |  |
| Vendor may support annual data reviews to ensure the system is configured and calculating appropriately. | C.19 |  |
| The vendor should provide a system database schema. | C.20 |  |
| The vendor may be able to describe the different services and levels of support that are available. | C.21 |  |
| The vendor should provide product release notes for the version of the software being recommended for use at the time of system implementation. | C.22 |  |
| System documentation should include both user guides and system administrator guides. | C.23 |  |
| The vendor should provide technical assistance with the configuration of the system. | C.24 |  |
| The vendor should provide technical assistance with the implementation of the system. | C.25 |  |
| A predefined process and associated expected timelines for trouble resolution should be provided. | C.26 |  |
| The vendor should be able to provide a process for system upgrades. | C.27 |  |
| System solution may be subject to an internal (vendor) QA process. | C.28 |  |
| The vendor should provide software configuration training to identified super users. | C.29 |  |
| The vendor may provide user-level training in a train-the-trainer format. | C.30 |  |
| The vendor should provide implementation and project support. | C.31 |  |
| Vendor should provide 7/24/365 support. | C.32 |  |
| The vendor may provide a file transfer site.; | C.33 |  |
| Vendor should track and monitor customer submitted bugs. | C.34 |  |
| Vendor should provide a single point of contact. | C.35 |  |