

Appendix A - HSI Requirements Traceability Matrix

RFP R44-17			Bidder Response Section	
Req #	Requirement Description	Attachment #	Delivery Method	Explanation
N/A	Note: The current Coding and Data Entry manuals as well as the MMUCC Guideline Model Minimum Uniform Crash Criteria 5th Edition (2017) are to assist the vendor in understanding the individual code tables and data elements referenced throughout the HSI Requirements Traceability Matrix as well as to allow the vendor a way to understand the complexity of the MMUCC 5th Edition requirements.	Coding manual / Data Entry manual/MMUCC Guideline Model Minimum Uniform Crash Criteria 5th Edition (2017)	1= Not Proposed 2 = Future Release 3 = Custom 4 = Base Product	Bidders must provide a brief explanation of how the proposed system meets this requirement. Bidder must ensure all information appears when printing Appendix A for submission.
GENERAL				
<i>General - General</i>				
H.GEN.05	The proposed solution must interface with NDOT's current Electronic Content Management System (OnBase). All image routing, storage, and queues will be retained from the current OnBase vehicle crash routing process. It is expected that some routing changes will need to be made by NDOT to accommodate the vendor's solution, but all routing changes will be made at the discretion of NDOT and done by NDOT. NDOT reserves the right to approve or disapprove all such proposed routing changes. Unless the proposed solution utilizes OnBase as the vendor's solution than it is expected that the vendor will work with NDOT's current process flow in designing their solution.			
H.GEN.05.1	The solution's database must have a data element for all MMUCC 5 data elements.			
H.GEN.05.2	The solution's database must allow for the required NDOT data elements that are unique to Nebraska. Note: Due to the MMUCC 5 upgrade NDOT is expecting the vendor to work with NDOT on defining the State's unique data elements using the MMUCC 5 data elements as a guide.			
H.GEN.05.3	The solution's database must separate the data elements into a logical table structure. Note: NDOT will make the final determination on the logical table design. This decision will be made based on the MMUCC 5 guidelines and the NDOT's Database Administrator.			
H.GEN.06	The proposed solution must be able to transfer image identifying information (keywords) between the solution and NDOT's current Electronic Content Management System (OnBase) in real time; a batch process of keyword updating/transfer is unacceptable.			
H.GEN.1	The solution must allow for manual updating of any previously entered crash report - investigator or driver -to include complete deletion of record/s (deletion for manager level authority only) Updating of reports will be done only at logical steps. i.e. A user cannot update location information outside of the location entry process. The solution must allow for all data fields to be updated from one centralized location - this feature is for management level or power users only.			
H.GEN.2	The solution must track all changes to a report over the life of the report. The life of the report will be defined as outlined within NDOT's record retention policy (H.GEN.2). Note: Changes are defined as any time the record has been updated, changed, deleted, etc.	H.GEN.2		
H.GEN.2.1	The solution must always maintain the original entered (electronic or manually entered) data within the solution's database. All changes will be additions to the original data and not replacements of the original data.			

H.GEN.3	<p>For compatibility with NDOT's current Electronic Contents Management system (OnBase), the matching algorithm within the proposed solution must use the Soundex that is a function built into Microsoft SQL server or equivalent. Note: OnBase document types can be set to search by SOUNDEX: searches documents that contain the word being searched for or any words that sound like, or whose letter pattern is similar to the word specified.</p> <p>There are additional Verity Search Clauses available as well. Wildcard: searches documents for certain letters with the remaining letters to be anything using either * or ?.</p>			
H.GEN.4	<p>The solution must recreate NDOT's Police Crash Report to look identical to the paper NDOT Police Crash Report (Attachment H.GEN.4) Note: The final version of the MMUCC 4+ form is currently being developed, but is expected to look close to the this attached current draft version.) The form will be a static form and not dynamic in nature; meaning the form will not adjust around the data being provided.</p>	H.GEN.4		
H.GEN.4.1	<p>The solution must recreate NDOT's Driver's Vehicle Crash report to look identical to the paper NDOT Driver's Vehicle Crash report (Attachment H.GEN.4.1) Note: The final version of the MMUCC 4+ form is currently being developed) The form will be a static form and not dynamic in nature; meaning the form will not adjust around the data being provided.</p>	H.GEN.4.1		
H.GEN.5	<p>The solution must accept incoming third party crash reporting system's data that are using NDOT's XSD 3.0. Note: The final version of NDOT's XSD 3.0 is still being developed. Attached is an Alpha version of the still in production XSD to be used for estimating purposes only.</p>	H.GEN.5		
H.GEN.6	<p>The solution must support cross field validation. e.g. If a body type code for a heavy truck/bus is selected only fields that have relevancy to that body code will be allowed to be entered. If a motorcycle body code is selected the vehicle occupancy must match to a seating position of that of a motorcycle. Note: New business rules are being created around the new MMUCC 4+ data and NDOT is expecting the vendor to work with NDOT to help define the new business rules and cross field validation.</p>			
H.GEN.7	<p>The solution must reproduce all the current computer derived data values for each vehicle crash. Due to the MMUCC upgrade, it is expected that there will be additional computer derived fields that NDOT will want to have auto calculated. It is expected that the vendor will work with NDOT to define these additional fields. Note: The attached code is the current list and how each value is generated. The MMUCC upgrade will necessitate that the vendor recreated the functionality of these fields but within the constraints of their solution.</p>	H.GEN.7		
H.GEN.8	<p>The solution must migrate all data that has been updated since the previous update to NDOT's SQL database. This update must not exceed 24 hours and 15 minutes since the last update. Ideal, but not required would be a more frequent update schedule. Note: It is expected that the vendor will work with NDOT to ensure that this process is set up and functions as design. NDOT will make the final determination of acceptance of this solution. Once a migration schedule is set the migration will occur at the same time every day.</p>			
H.GEN.9	<p>The solution must be programmed in such as way as to functions during leap year as it would for any other year or day.</p>			
H.GEN.9.1	<p>The solution must create a unique crash identifier for each new crash case within the vendor's solution. The unique crash identifier will be formatted by year (without the second year value)/number of crashes in that county for that year e.g. 217000001 - this would be the year 2017 and the first crash within the county for the given year. Note: The crash case identifier will always be 9 numerical values in length.</p>			

H.GEN.10	The solution must start a new unique crash identifier for the new year on the first day of each new year automatically without being prompted by the user to create the new unique crash identifier.			
H.GEN.11	The solution must allow for the inclusion of Canadian and Mexican zip codes and state/provinces.			
RESTRICTED ACCESS				
<i>Restricted Access - General</i>				
H.RA.1	The solution must restrict access to the crash data to only authorized users of the solution. Crash data is to be defined as all data within the working queue, all currently being worked on reports, the production crash database, and the archived database.			
H.RA.2	The solution must have security groups for administrators, manager, power users, data operators, Law enforcement, contractors, and the general public. Each group will have a different level of access and restricts. Note: Each group's rights and permissions will be defined by NDOT once a solution has been proposed and the full functionality of the solution has been demonstrated.			
H.RA.3	The solution must provide NDOT with the ability to manage the security groups as referenced in H.RA.2.			
H.RA.4	The solution must provide an easy industry standard way to administer each group's rights and permissions referenced in H.RA.2 and H.RA.3; the final solution is subject to NDOT's approval.			
H.RA.5	Depending on the proposed solution, the solution must allow for authorized NDOT staff to edit field tables. E.g. a new county is added to the state of Nebraska, NDOT staff should be able to add this county without requiring assistance from the vendor. NDOT reserves the right to make final acceptance of this requested functionality based on the vendor's proposed solution.			
H.RA.5.1	The solution must allow for authorized NDOT staff to add or delete fields within the solution's database. This should follow a standard software approach and should be user-friendly. NDOT will make the determination on what is user-friendly and if the proposed solution to add or delete fields is an acceptable approach.			
H.RA.6	The solution must pass "keywords" (report identifying data) between the solution and NDOT's Enterprise Countenance Management System (OnBase) Note: NDOT will be making all changes to the OnBase system unless the proposed vendor's solution utilizes OnBase, in this case, NDOT expects the vendor to perform all the necessary changes to our ECM. Note: NDOT reserves the right to determine what is necessary and also retains the right to do some or all the work themselves.			
H.RA.6.1	The solution must allow authorized NDOT staff the ability to add, edit, or delete keywords that are passed between NDOT's Content Management System (OnBase) and the solution.			

REPORTS				
	FARS Linkage			
H.F.F.1	The solution must create a usable linkage process as outlined by the Fatal Accident Reporting System (FARS). A detailed description of the process is available within attachment # as well as Vermont's example of a successful data transmitted XML	H.F.F.1		
	Fatal Morning (H.F.M.4), Monthly (B.2), and Year-end Reports (B.3)			
H.F.M.1	The solution must generate the Fatal Monthly report (Attachment H.F.M.1) in a PDF format upon request by the user.	H.F.M.1		
H.F.M.2	The solution must migrate the last five years of data from the Microsoft Access Fatality Database from the 20xx Accident Data table (Attachment H.F.M.2). This historical data is to be used for the five-year calculations within the Fatal Morning Report (Attachment H.F.D.1) This migrated data can be uploaded into any solution provided by the vendor and doesn't have to reference the original MS Access table after uploading.	H.F.M.2		
H.F.M.3	The solution must provide a user-friendly user interface, only accessible to authorized users, for the purpose of entering fatality information that will be used to generate the Fatal Morning, Fatal Monthly, and Fatal Year-end reports.			
H.F.M.4	The solution must accurately duplicate the report attachment H.F.M.4. All numbers will be auto filled from data previously entered via H.F.3 and stored within H.F.M.2. Note: This is a five-year rolling average so the report is expected to make unassisted automatic calculations.	H.F.M.4		
H.F.M.5	The solution will automatically calculate the relevant values as displayed within attachment H.F.M.4 based on the current year and date using the data entered within H.F.M.2 and H.F.M.3; later years will use the data entered via the vendor's solution.			
H.F.Y.1	The solution must generate the Fatal Year-end report (Attachment H.F.Y.1) in a PDF format upon request by the user.	H.F.Y.1		
H.F.Y.2	The solution must accurately duplicate the report template as outlined in attachment H.F.Y.1. All numbers will be auto filled from data previously entered via H.F.3 and stored within H.F.M.2. Note: This is a five-year rolling average so the report is expected to make unassisted automatic calculations.			
H.F.Y.3	The solution will automatically calculate the relevant values as displayed within attachment H.F.Y.1 based on the current year and date using the initial data entered within H.F.M.2 and H.F.M.3; later years will use the data entered via the contracted solution.			
H.F.D.1	The solution must generate the Morning report (Attachment H.F.D.1) in a PDF format upon request by the user.	H.F.D.1		
H.F.D.2	The solution must at a minimum accurately duplicate the report template as outlined in Attachment H.F.D.1, but it is expected that the vendor will modernize the look, feel, and ease of use of this form. All numbers will be auto-filled from data previously entered via H.F.3 and stored within H.F.M.2. Note: This is a five-year rolling average so the report is expected to make unassisted automatic calculations.			
H.F.D.3	The solution will automatically calculate the relevant values as displayed within attachment H.F.D.1 based on the current year and date using the data entered within H.F.M.2 and H.F.M.3; later years will use the data entered via the contracted solution.			

	Monthly Standard Summary Report			
H.S.1	The solution must generate the Monthly Standard Summary, for the requested month, within the requested year, (attachment H.S.1) in a PDF format, upon request by the user. Note: The individual boxes within the report are subject to change based on the new data that will become available from moving to a MMUCC 4+ form. It is expected that the vendor will work with NDOT to define this new data being collected, define the rules around the new data collected, and design and produce a new form.	H.S.1		
H.S.2	The solution must allow for the manual input of the previous year's miles traveled and the current year's miles traveled. This data will remain in the system until deleted by the user. Only the previous year and current year's data will ever be entered into this screen. This information will be used to generate the Monthly (C.1), Quarterly (C.2), and Year-end (C.4) Reports.	H.S.2		
	Quarterly Standard Summary Report			
H.Q.1	The solution must generate the Quarterly Standard Summary, for the requested year, for the requested quarter, (attachment H.Q.1) in a PDF format, upon request by the user. Note: The individual boxes within the report are subject to change based on the new data that will become available from moving to a MMUCC 4+ form. It is expected that the contractor will work with NDOT to define this new data being collected, define the rules around the new data collected, and design and produce a new form.	H.Q.1		
	Year-End Standard Summary Report			
H.Y.1	The solution must generate the Year-End Standard Summary, for the requested year, (attachment H.Y.1) in a PDF format, upon request by the user. Note: The individual boxes within the report are subject to change based on the new data that will become available from moving to a MMUCC 4+ form. It is expected that the contractor will work with NDOT to define this new data being collected, define the rules around the new data collected, and design and produce a new form.	H.Y.1		
	Static Database			
H.SD.1	The solution must, upon running the <u>Year-End Standard Summary Report (H.Y.1)</u> , create an archive of the complete database for that year's data. This archived database will be available for querying purposed for ten (10) years after which time the 10th year's data can be deleted and replaced with the current year's data. The initial solution will not have any historical data until the first year of data has been completed within the new solution. Note: NDOT is open to any solution that allows for the historical querying of the data so that reports ran after the year-end summary match up with the data within the year-end summary.			
	DATA ACCESS			
N/A	Note: Ideally all files within the Data Access section would be created during one process. Meaning the daily XML file and daily XML sanitized file would be created at the same time during one process.			
	XML File - General			
H.XML.GEN.1	The vendor must provide complete documentation for all XML files. Complete documentation includes file layout and any other information needed for the file receiver to understand and integrate the file. NDOT will make the final determination of what is acceptable documentation.			

	Daily XML File - Complete			
H.XML.1	The solution must generate a daily XML file that contains all data from all tables within the database. This file will only have data that was newly created or updated from the previous day. This XML file will be uploaded to a yet to be determined, by NDOT, located on NDOT's (OCIO) server. This XML file will be created at the end of business - after 6 PM. CST.			
	Monthly XML File - Complete			
H.XML.2	The solution must generate a monthly XML file that contains all data from all tables within the database. This file will only have data that was newly created or updated from the previous month. This XML file will be uploaded to a yet to be determined, by NDOT, located on NDOT's (OCIO) server. This XML file will be created on the last day of the month at the end of business - after 6 PM. CST.			
	Yearly XML File - Complete			
H.XML.3	The solution must generate a Yearly XML file that contains all data from all tables within the database. This file will only have data that was newly created or updated from the currently completed Year. This XML file will be uploaded to a yet to be determined, by NDOT, located on NDOT's (OCIO) server. This XML file will be created at the end of business - after 6 PM. CST. Note: This file's generation will be tied to the completion of the year-end crash data and not the calendar year. It is acceptable if the generation of this file is initiated by a user command, but this initiation must be straight forward and user-friendly requiring minimal user input and no code manipulation.			
	Daily XML File - Sanitized			
H.XMLS.1	The solution must generate a daily XML file that contains sanitized data (excluded data to be determined by NDOT at a later date) from all tables within the database. This file will only have data that was newly created or updated from the previous day. This XML file will be uploaded to a yet to be determined, by NDOT, located on NDOT's (OCIO) server. This XML file will be created at the end of business - after 6 PM. CST.			
	Monthly XML File - Sanitized			
H.XMLS.2	The solution must generate a Monthly XML file that contains sanitized data (excluded data to be determined by NDOT at a later date) from all tables within the database. This file will only have data that was newly created or updated from the previous month. This XML will be uploaded to a yet to be determined, by NDOT, located on NDOT's (OCIO) server. This XML file will be created on the last day of each month at the end of business - after 6 PM. CST.			
	Yearly XML File - Sanitized			
H.XMLS.3	The solution must generate a Yearly XML file that contains sanitized data (excluded data to be determined by NDOT at a later date) from all tables within the database. This file will only have data that was newly created or updated from the currently completed Year. This XML file will be uploaded to a yet to be determined, by NDOT, located on NDOT's (OCIO) server. This XML file will be created at the end of business - after 6 PM. CST. Note: This file's generation will be tied to the completion of the year-end crash data and not the calendar year. It is acceptable if the generation of this file is initiated by a user command, but this initiation must be straight forward and user-friendly requiring minimal user input and no code manipulation.			

XML - External Vehicle Information				
H.EXML.1	The solution must generate a daily XML file that contains only vehicle-related data (included data to be determined by NDOT at a later date) from all tables within the database. This file will only have data that was newly created or updated from the previous day. This XML file will be uploaded to a yet to be determined, by NDOT, located on NDOT's (OCIO) server. This XML file will be created at the end of business - after 6 PM. CST. Note: The attached file is for estimation purposes only and subject to changes due to the new MMUCC 4 data elements.	H.EXML.1		
H.EXML.2	The solution must generate a Monthly XML file that contains only vehicle-related data (included data to be determined by NDOT at a later date) from all tables within the database. This file will only have data that was newly created or updated from the previous month. This XML file will be uploaded to a yet to be determined, by NDOT, located on NDOT's (OCIO) server. This XML file will be created on the last day of each month at the end of business - after 6 PM. CST. Note: The attached file is for estimation purposes only and subject to changes due to the new MMUCC 4 data elements.	H.EXML.2		
H.EXML.3	The solution must generate a Yearly XML file that contains only vehicle-related data (included data to be determined by NDOT at a later date) from all tables within the database. This file will only have data that was newly created or updated from the currently completed Year. This XML file will be uploaded to a yet to be determined, by NDOT, located on NDOT's (OCIO) server. This XML file will be created on the last day of the year at the end of business - after 6 PM. CST. Note: The attached file is for estimation purposes only and subject to changes due to the new MMUCC 4 data elements.	H.EXML.3		
XML - Federal Heavy Truck / Bus Data				
H.CAR.XML.1	The solution must generate a daily XML file that contains only heavy truck and bus vehicle related data (included data to be determined by NDOT at a later date) from all tables within the database. This file will only have data that was newly created or updated from the previous day. This XML file will be uploaded to a yet to be determined, by NDOT, located on NDOT's (OCIO) server sent to via email to a predetermined email address - NDOT will make this determination at a later date. This XML file will be created at the end of business - after 6 PM. CST. Note: The attached file is for estimation purposes only and subject to changes due to the new MMUCC 4 data elements.	H.CAR.XML.1		
CSV Crash Data File Layout Documentation				
H.FF.1	The contractor must provide a Crash Data File Layout Documentation of each of the corresponding CSV files (H.FFM.1, H.FFY.1, H.FFMS.1, AND H.FFYS.1)	H.FF.1		
Monthly CSV File - Complete				
H.FFM.1	The solution must generate a comma delimited text file (CSV) monthly containing all data from all tables within the database. This file will only have data that was newly created or updated from the previous month. This CSV will be uploaded to a yet to be determined, by NDOT, located on NDOT's server. This CSV file will be created at the end of business - after 6 PM. CST. Note: This file's generation will be tied to the completion of the month-end crash data and not the calendar month.			

	Yearly CSV File - Complete			
H.FFY.1	The solution must generate a comma delimited text file (CSV) Yearly that contains all data from all tables within the database. This file will only have data that was newly created or updated from the currently completed Year. This CSV will be uploaded to a yet to be determined, by NDOT, located on NDOT's server. This CSV file will be created at the end of business - after 6 PM. CST. Note: This file's generation will be tied to the completion of the year-end crash data and not the calendar year. It is acceptable if the generation of this file is initiated by a user command, but this initiation must be straight forward and user-friendly requiring minimal user input and no code manipulation.			
	Monthly CSV File - Sanitized			
H.FFMS.1	The solution must generate a comma delimited text file (CSV) monthly file that contains sanitized data (excluded data to be determined by NDOT at a later date) from all tables within the database. This file will only have data that was newly created or updated from the previous month. This CSV file will be uploaded to a yet to be determined, by NDOT, located on NDOT's server. This CSV file will be created at the end of business - after 6 PM. CST. Note: This file's generation will be tied to the completion of the month-end crash data and not the calendar month.			
	Yearly CSV File - Sanitized			
H.FFYS.1	The solution must generate a comma delimited text file (CSV) yearly that contains sanitized data (excluded data to be determined by NDOT at a later date) from all tables within the database. This file will only have data that was newly created or updated from the currently completed Year. This CSV file will be uploaded to a yet to be determined, by NDOT, located on NDOT's server. This CSV file will be created at the end of business - after 6 PM. CST. Note: This file's generation will be tied to the completion of the year-end crash data and not the calendar year. It is acceptable if the generation of this file is initiated by a user command, but this initiation must be straightforward and user-friendly requiring minimal user input and no code manipulation.			
	DATA VISUALIZATION			
	Data visualization Dashboard			
H.DV.1	The solution must allow for the creation of dashboards. These dashboards will be interactive, allowing authorized users the ability to select from available options (i.e. county, date range, severity, casualty factor, etc.) which in turn will modify the pre-created graphs and charts. It is expected the vendor will work with NDOT on the final design of the dashboards, final approval of dashboard's layout, metrics, and usability will be made by NDOT.			
H.DV.2	The solution must allow for the creation of dashboards. These dashboards will be interactive, allowing the general public the ability to select from available options (i.e. county, date range, severity, casualty factor, etc.) which in turn will modify the pre-created graphs and charts. It is expected the vendor will work with NDOT on the final design of the dashboards, final approval of dashboard's layout, metrics, and usability will be with NDOT. Note: The scope of H.DV.2 will be the recreation of the graphs and charts within the attached Fact Book, but with the ability for the public to query all data with the proposed solution that corresponds to the Fact Book graphs. All underlying data will remain secure and not accessible to the general public. Additionally, with the new MMUCC data, some of these graphs and charts are subject to change and some additional graphs and charts may be created.	H.DV.2		
H.DV.3	The solution must allow authorized NDOT personnel to modify, update, delete, and create new NDOT dashboards as well as be able to modify, update, and delete vendor created dashboards. Note: H.DV.3 must be able to occur without having to depend on the vendor to make the requested changes.			

DATA QUERIES				
Data Queries - Coding				
H.SQ.6	The solution must allow querying of the archived data, for all ten (10) years, to be as easily accessible as outlined in the Data Queries - Drag and Drop Data Queries and Data Queries - Coding sections.			
H.SQ.6.1	The solution must allow for the querying of the complete solution's vehicle crash database.			
H.SQ.7	The solution must allow the querying of the complete solution's vehicle crash database, to include the archived data, via SQL. Note: NDOT does not support Oracle, but does utilize Microsoft SQL.			
H.SQ.8	The solutions must be configured in such a way as to allow for quick SQL querying with a minimum amount of steps required to get to the code writing screen.			
H.SQ.9	The solution must allow for the storage of user created queries that can be recalled and reused by the user.			
H.SQ.10	The solution must allow for the deletion of user created queries.			
H.SQ.11	The solution must only allow access to user created queries by the user creator or administrators.			
H.SQ.12	The solution must allow a user to share user created queries that are usable by all authorized users of the solution.			
H.SQ.13	The solution must allow for the reviewing of location line marking information. This process must allow authorized staff to query location information - the fields in the report will be provided by NDOT once a solution to this issue has been proposed by the vendor. Final acceptance of this solution will be by NDOT.			
H.SQ.14	The solution must allow improperly entered locations discovered by H.L.LMSM.8 to be documented as incorrect, who did the marking work; and allow the crash report to be routed back to the original marking staff for corrections. Note: The solution must work with NDOT's current OnBase Electronic Content Management System's (OnBase).			
H.SQ.15	The solution must allow for reports to be run and printed when H.L.LMSM.9 occurs. It is expected that the vendor will work with NDOT on the final creation of this report.			
Data Queries - Drag and Drop Data Queries				
H.DD.Q.1	The solution must provide a user interface that allows for drag and drop query capabilities. E.g. Microsoft PowerPivot type of interface.			
H.DD.Q.2	The solution must only allow authorized NDOT employees access to H.DD.Q.1.			
H.DD.Q.3	The solution must allow for exporting out of the query results of H.DD.Q.1 into some type of universally available software. Note: Universally available is defined as any software that can be reasonably expected to be on a standard office environment PC.			

IMAGE				
Image Versioning				
H.IV.1	The solution must be able to compare a previous version of an electronically submitted investigators reports against an amended (second sending of the original document by the investigating agency) investigator's report to identify what has changed from the original. In cases that there is more than one amended report, the solution will compare against the latest version of the submitted report and identify any changes. Note: NDOT's desire is to have the amended report's changes highlighted within the amended report, but we are open to other alternatives that accomplish the same objective. Final acceptance of the proposed solution will be NDOT's.			
H.IV.2	The solution must transmit the amended electronic NDOT40 report along with the imaging versioning solution to NDOT's Electronic Continent Management system - OnBase. This image will follow the same matching process as outlined in in the NDOT Third Party Electronic Reporting Process section .			
Redacted NDOT Form				
H.RD.1	The solution must generate a redacted version of NDOT's Investigator's form (NDOT40 - to include the continuation, pedestrian, truck/bus, and fatal forms). All identifying personal information will be <u>removed</u> from the image and black boxes inserted to replace the removed data. Determination of what is identifiable information will be a decision made by NDOT at a later date.	H.RD.1 - front side and H.RD.1 - back side		
H.RD.1.1	The solution must have a way to indicate what fields should be redacted from public viewed reports and which fields can be viewed. This "switch" should be a value within the solutions database that allows authorized NDOT staff to switch the value on or off.			
H.RD.2	The solution must transmit the redacted version of the NDOT40 to NDOT's Electronic Continent Management system - OnBase. This image will follow the same matching process as outlined in in the NDOT Third Party Electronic Reporting Process section.			
H.RD.3	The solution must recreate the redacted NDOT40 form to duplicate the original NDOT40 form, with the exceptions outlined in H.RD.1.			
DATA ENTRY				
General - Data Entry				
H.DGEN.05	The solution must allow for auto tabbing between fields and not require that Data Entry staff to a mouse click or hit enter to move between fields. Note: This only applies to fields that are fixed length in nature. Those fields that are non-fixed length i.e. a driver's name this should be handled by a clicking or enter key approach.			
H.DGEN.05	The solution must allow for field level validation on all fields within the Data Entry process. Validation should take place at the final entry of the data entry screen except when expressly outlined differently in the Data Entry section of this document.			
H.DGEN.06	The solution must allow Data Entry staff to route a crash case to authorized NDOT employees to be reviewed. This crash case will remain in this "Supervisory Review" status until authorized staff makes a determination on how to proceed. Note: The solution to this issue must also notify NDOT's Content Management System (OnBase) of the crash cases status so that the image can be routed accordingly.			

H.DGEN.1	The solution must be able to link to the Nebraska Department of Motor Vehicle Driver's License database.	Two methods that are currently being utilized by NDOT to accomplish this task are attached. The final solution is left up to the vendor, but subject to NDOT's, DMV, and the OCIO's approval. (H.DGEN.5)		
H.DGEN.1.05	The solution must allow for all authorized NDOT employees to link (associate) two cases together by a user-friendly method. NDOT will make the final determination on what is a user-friendly method once the vendor proposes a solution.			
H.DGEN.1.06	The solution must allow for all authorized NDOT employees to unlink (un-associate) two cases by a user-friendly method. NDOT will make the final determination on what is a user-friendly method once the vendor proposes a solution.			
H.DGEN.1.1	The solution must allow for the ordering of missing information letters during all levels of the Data Entry process. The allowable letters will be filtered by which screen the individual data entry staff is working on. e.g. Those letters pertaining to drivers missing information can only be ordered from the driver's screen. Note: Due to the changing nature of NDOT's business processes because of the MMUCC 4+ upgrade the current letter list (attachment H.DGEN.1.1) is subject to changes as well as the wording and layout of the current letters.	H.DGEN.1.1		
H.DGEN.1.2	The solution must store the ordered letters (H.DGEN.1.1) throughout the day until NDOT authorized staff to request the letters to be printed.			
H.DGEN.1.3	The solution must provide a way for authorized NDOT staff to enter the information for the letters when H.DGEN.1.2 is executed. Note: The data should be provided by the solution's database, but amendable by NDOT staff before the letters are printed. Final acceptance of this process will be made by NDOT once a proposed solution has been selected by the vendor.			
H.DGEN.1.4	The solution must allow for the printing of the letters (H.DGEN.1.1 though H.DGEN.1.3) to a user selected printer. The user must be able to easily change the print location of the letters.			
H.DGEN.5	The solution must require all screens to pass edit validation before the case can be completed.			
H.DGEN.6	The solution must allow authorized NDOT employees to reassign an unfinished case to another authorized NDOT employee to be finished.			
General - DMV Linkage for Drivers License				
H.DGEN.2	The solution must validate a driver's license number after the user exits the field e.g. tabs to the next data field. Note: NDOT currently only has access to the Nebraska state driver's license database, but the solution's functionality should be designed in such a way as to allow for additional state querying expansion.			
H.DGEN.3	The solution must, upon executing H.DGEN.2 auto populate the remaining driver's license information for that individual driver's license number.			
H.DGEN.4	The solution must, upon executing H.DGEN.2, and there are no results found, allow the data entry staff to manually enter the remaining driver's information.			

General - DMV Linkage for VIN				
H.DGEN.5	The solution must be able to link to the Nebraska Department of Motor Vehicle database for vehicle information.	A current solution that is being utilized by NDOT to accomplish this task is attached. The final solution is left up to the vendor, but subject to NDOT's NDMV, and the OCIO's approval. (H.DGEN.5)		
H.DGEN.6	The solution must validate a vehicle's license plate number after the user exits the field e.g. tabs to the next data field. Note: NDOT currently only has access to the Nebraska state vehicle database, but the solution's functionality should be designed in such a way as to allow for additional state querying expansion.			
H.DGEN.7	The solution must, upon executing H.DGEN.6, auto populate the remaining vehicle's registration information for that individual vehicle's plate number, from the DMV's database.			
H.DGEN.8	The solution must, upon executing H.DGEN.6, and there are no results found, allow the data entry staff to manually enter the remaining driver's information.			
H.DGEN.9	The solution must be able to validate a manually entered Vehicle Identification Number (VIN) for accuracy. One example of this approach can be found at http://www.dmv.org/vehicle-history/vin-decoder.php The user should not have to click a button to make the validation, the solution should auto-validate upon exiting the VIN data field.			
H.DGEN.10	The solution must allow the data entry staff to enter a non-valid VIN and the solution will accept it. Note: To bypass the validation the data entry staff must place a check in a box or enter some type of value into an "override VIN validation" field.			
Manual Data Entry Screens - Investigator Report				
H.D.DMI.1	The solution must provide for a manual Investigator crash report entry process.			
H.D.DMI.2	The solution must prompt the user to enter the number of vehicles; drivers; injured occupants; injured non-motorist; heavy truck and bus; and fatalities.			
H.D.DMI.3	The solution must place the entered data via the prompt (H.DDM.2) into the correct order. E.g. If vehicle #1 was a heavy truck then the heavy truck and bus form would follow the vehicle #1 page.			
H.D.DMI.4	The solution must display manual data entry Investigator screens in the order outlined by H.D.DMI.2 and H.D.DMI.3.			
H.D.DMI.5	The solution must allow entry of all data entry fields from a previously scanned in paper investigator image (outside the scope of this RFP) as per H.D.DMI.4.			
H.D.DMI.6	The solution must have the ability for the user to save a partially finished entered report. The saving functionality must be in a user-friendly fashion i.e. clicking a save button.			
H.D.DMI.7	The solution must allow for the retrieval of a partially finished report (H.D.DMI.6) and allow the user to finish entering the report.			
H.D.DMI.7.1	The solution must take the user to their partially finished report upon logging into the solution.			

H.D.DMI.8	The solution must save the final submittal of a finished manual data entered investigator report.			
H.D.DMI.9	The solution must not allow for data querying of partially entered manual data entered investigator crash report data. Note: Not querying data is meant to mean not allowing querying for research purposed of data that hasn't been fully entered. It is expected for management purposed that the ability to query partially entered manually entered investigator reports will be available.			
Manual Data Entry Screens - Driver Report				
H.D.DMD.1	The solution must provide for a manual Driver's crash report entry process.			
H.D.DMD.2	The solution must prompt the user to enter the number of vehicles and drivers.			
H.D.DMD.2.1	The solution must provide a way to add injured occupants, injured non-motorist, and objects at the proper location within the manual data entry process via some type of Add button functionality as defined by NDOT's business rules.			
H.D.DMD.3	The solution must display manual data entry Driver's screens in a logical order, the logical order will be defined by NDOT on a proposed solution has been provided by the vendor.			
H.D.DMD.4	The solution must allow entry of all data entry fields from a previously scanned in paper driver's image (outside the scope of this RFP) as per H.D.DMD.3.			
H.D.DMD.5	The solution must have the ability for the user to save a partially finished entered report. The saving functionality must be in a user-friendly fashion i.e. clicking a save button.			
H.D.DMD.6	The solution must allow for the retrieval of a partially finished report (H.D.DDM.5) and allow the user to finish entering the report.			
H.D.DMD.6.1	The solution must take the user to their partially finished report upon logging into the solution.			
H.D.DMD.7	The solution must save the final submittal of a finished manual data entered driver's report.			
H.D.DMD.8	The solution must not allow for data querying of partially entered manual data entered driver crash report data. Note: Not querying data is meant to mean not allowing querying for research purposed of data that hasn't been fully entered. It is expected for management purposed that the ability to query partially entered manually entered drivers reports will be available.			
Electronic Data Entry Screens - Investigator Report				
H.D.DEI.1	The solution must provide for an electronic Investigator crash report entry process.			
H.D.DEI.2	The solution must pre-populate the number of vehicles; drivers; injured occupants; injured non-motorist; heavy truck and bus; and fatalities. from the corresponding incoming XML data outlined in the NDOT Third Party Electronic Reporting Process and Auto Matching Process in this document.			
H.D.DMI.3	The solution must display to the user only those fields that need to be reviewed by NDOT staff to ensure that what has been entered align to NDOT's business rules; all other fields will be removed from the electronic data entry screens, but maintained within the crash database. It is expected that the vendor will work with NDOT to ensure that all business rules (H.D.DMI.3) have been updated to reflect MMUCC 4+ guidelines.	H.D.DMI.3		
H.D.DMI.4	The solution must have the ability for the user to save a partially finished entered report. The saving functionality must be in a user-friendly fashion i.e. clicking a save button.			

H.D.DMI.5	The solution must allow for the retrieval of a partially finished report (H.D.DMI.4) and allow the user to finish entering the report.			
H.D.DMI.6.5	The solution must take the user to their partially finished report upon logging into the solution.			
H.D.DMI.6	The solution must save the final submittal of a finished electronic data entered investigator report within the crash database.			
H.D.DMI.7	The solution must not allow for data querying of partially entered electronic data entered investigator crash report data. Note: Not querying data is meant to mean not allowing querying for research purposed of data that hasn't been fully entered. It is expected for management purposed that the ability to query partially entered electronic entered investigator reports will be available.			
Electronic Data Entry Screens - Driver Report				
H.D.DEI.1	The solution must provide for an electronic Driver crash report entry process.			
H.D.DEI.2	The solution must pre-populate the number of vehicles, drivers, injured occupants, objects, and injured non-motorist. from the corresponding incoming XML data outlined in the NDOT Third Party Electronic Reporting Process and Auto Matching Process in this document.			
H.D.DMI.3	The solution must display to the user only those fields that need to be reviewed by NDOT staff to ensure that what has been entered align to NDOT's business rules; all other fields will be removed from the electronic data entry screens, but maintained within the crash database. It is expected that the vendor will work with NDOT to ensure that all business rules (H.D.DMI.3) have been updated to reflect MMUCC 4+ guidelines.	H.D.DMI.3		
H.D.DMI.4	The solution must have the ability for the user to save a partially finished entered report. The saving functionality must be in a user-friendly fashion i.e. clicking a save button.			
H.D.DMI.5	The solution must allow for the retrieval of a partially finished report (H.D.DMI.4) and allow the user to finish entering the report.			
H.D.DMI.5.1	The solution must take the user to their partially finished report upon logging into the solution.			
H.D.DMI.6	The solution must save the final submittal of a finished electronic data entered driver report.			
H.D.DMI.7	The solution must not allow for data querying of partially entered electronic data entered driver crash report data. Note: Not querying data is meant to mean not allowing querying for research purposed of data that hasn't been fully entered. It is expected for management purposed that the ability to query partially entered electronic entered driver reports will be available.			

H.D.DMI.8	The solution must expand to allow the entry of heavy truck/bus information based on the vehicle body code. If a body code is selected that requires heavy truck/bus information the heavy truck/bus information will automatically display to the data entry staff. Note: NDOT will make the determination on what body codes require the additional heavy/truck information.			
H.D.DMI.9	The solution must allow heavy truck/bus information to be entered by the data entry staff, following NDOT's required field layout, but allow for selected fields to be left blank. If a field is left blank a not stated is moved into the solutions database without prompting the user for assistance, or notifying the user of this fact. NDOT will make the determination on what is a required field once the vendor has been selected and they require this information.			
LOCATION MARKING / SPOT MAPPING				
<i>General - Location Marking / Spot Mapping</i>				
H.GEN.LMSM.04.1	The solution must directly connect to either NDOT's or the OCIO's SQL server GIS server database for daily updates for the displaying of bridges, railroad crossings, and county boundaries latitude/longitude, and marking information. Note: Depending on the amount of detail needed the vendor can connect to NDOT's (detailed data) or the OCIO's (public data) to meet this requirement.			
H.GEN.LMSM.04.2	The solution must allow NDOT staff to apply one of the selected GIS filters for H.GEN.LMSM.04.1 and H.GEN.LMSM.04.3 in a user-friendly manner e.g. clicking on a bridge icon to display the bridge KMZ file over NDOT's Base Maps (H.GEN.LMSM.04.9) etc. Note: User-friendly will be defined by NDOT.			
H.GEN.LMSM.04.3	The solution should provide an intersection Keyhole Markup Language Zipped (KMZ) file for the state of Nebraska. Ideally, this file would be complete, meaning that every public roadway intersection would have a latitude/longitude map coordinate, but NDOT would accept a base intersection KMZ file that is easily editable by the Location Marking / Spot Mapping staff. Base intersection map within H.GEN.LMSM.04.3 is defined as all public roadways intersections within the cities of Omaha, Lincoln, Grand Island Beatrice, Fremont, Hastings, Kearney, South Sioux City, Columbus, Gering, Scottsbluff, McCook, Norfolk, North Platte, Bellevue, LaVista, and Papillion .			
H.GEN.LMSM.04.4	If H.GEN.LMSM.04.4 is created the file should be created in such a way as to be uploadable into NDOT's SQL GIS database and usable by all NDOT employees. This file should allow for updates and ease of maintenance.			
H.GEN.LMSM.04.5	The solution must allow for the clicking on a "spot" to display the unique crash identifier.			
H.GEN.LMSM.04.6	The solution must allow for the recording of Location Marking / Spot Mapping completion date within the solution's database. This data must also be routed to NDOT's Electronic Content Management System (OnBase) for image routing purposes.			
H.GEN.LMSM.04.7	The solution must allow for the ability to filter by county and date.			
H.GEN.LMSM.04.8	The solution must auto feed the next report to be worked to the user within the boundaries outlined in H.GEN.LMSM.001 and H.L.LMSM.6. This functionality must also allow the user to selectively pick a report to be worked bypassing the auto feed functionality.			
H.GEN.LMSM.04.9	The solution must use NDOT's Base Maps as the base map for the mapping solution. Note: NDOT's Base Maps are created using a Geographic system of North American 1983 mapping standard.			

H.GEN.LMSM.05	The solution must allow for field level validation on all fields within the Location Marking / Spot Mapping process. Validation should take place at the field level and wait until the final entry of the Location Marking / Spot Mapping screen before validation takes place.			
H.GEN.LMSM.1	The solution must record a crash's location in a decimal degrees latitude and longitude geographic coordinate format Note: NDOT's Base Maps are created using a Geographic system of North American 1983 mapping standard .			
H.GEN.LMSM.2	The solution must link the values from H.GEN.LMSM.1 to the corresponding vehicle crash data within the solution's vehicle crash database by the use of the crash case unique identifier.			
H.GEN.LMSM.3	The solution must provide a user interface similar to Google Earth that allows for satellite view as well as map view but uses NDOT's base maps Note: NDOT's base maps are created using a Geographic system of North American 1983 mapping standard.	H.GEN.LMSM.3		
H.GEN.LMSM.3.1	The solution must allow the user the ability to display all earlier placed crashes, in a current location, on the map. Note: This should be done in a user-friendly manner e.g clicking on a "show all spot" button. NDOT will make the determination of what is user-friendly once the vendor proposes a solution to this issue. Sub-note: NDOT expects the vendor to work with us on defining the parameters on how far back the "earlier crashes" will be displayed.			
H.GEN.LMSM.3.2	The solution must allow for the clicking on a spot to display the unique crash identifier.			
H.GEN.LMSM.4	The solution must allow zooming in and out as well as panning of the map described in H.GEN.LMSM.3.			
H.GEN.LMSM.5	The solution must allow the user to quickly and in a user-friendly manner switch between map view and satellite view. I.e. clicking a button to toggle on and off the different views. Note: User-friendly will be defined by NDOT.			
H.GEN.LMSM.6	The solution must allow for scrolling of the map so that the user can move in all cardinal directions within the boundaries of the state of Nebraska. Note: NDOT is not opposed to allowing the map to function - scroll, zoom, and pan - outside of the bounds of Nebraska, but it should be limited to the continental United States. Sub note: This functionality must work with H.GEN.LMSM.4.			
H.GEN.LMSM.6.1	The solution must display the crashes location(H.L.LMSM.3 #1) as indicated by the data previously entered into the solution's crash database via the DATA ENTRY section described within this document.	H.L.LMSM.3		
H.GEN.LMSM.6.2	The solution must allow for the updating of the lat/long when the geographic location is changed. This should update the data within the solution's database.			
H.GEN.LMSM.6.3	The solution must allow for the deletion of a crash location "Spot".			
H.GEN.LMSM.6.4	The solution must allow for the non-entry of a crash location "spot" in a user-friendly manner i.e. clicking on a "no spot needed" button. Note: user-friendly will be defined by NDOT.			
H.GEN.LMSM.6.5	The solution must allow the moving of the visual spot on the solutions mapping solution to be moved from one location to another.			
H.GEN.LMSM.6.6	If the incoming crash report has no latitude/longitude data associated with the incoming report the solution's mapping interface must allow NDOT staff to indicated a latitude/longitude "spot" by a user-friendly method e.g. clicking on the mapping interface to place the new NDOT primary geographic(spot) location of the crash. Note: user-friendly will be defined by NDOT.			

H.GEN.LMSM.6.7	The solution must maintain the original geographic location within the solutions database even in cases that NDOT employees move the crash location.			
H.GEN.LMSM.7	The solution must not allow for placement of a crash location outside of the geospatial coordinates of the boundaries of Nebraska.			
H.GEN.LMSM.8	The solution must indicate the vehicle's crash location by a spot. Spot sizing will be determined by NDOT once a proposed solution has been created. The spot should be dynamic in nature and size accordingly to the map.			
H.GEN.LMSM.8.1	The solution must convert an NDOT Reference Post to a Latitude / Longitude value and convert a Latitude / Longitude value to an NDOT Reference Post. Note: The reference post (mile post) database is the property of NDOT and stored and maintained at NDOT. The data is available via IBM DB2 database tables or Microsoft SQL tables.	A current solution that is being utilized by NDOT to accomplish a Reference Post to a Latitude / Longitude is attached. The final solution is left up to the vendor, but subject to NDOT's NDMV, and the OCIO's approval. (H.GEN.LMSM.8.1)		
H.GEN.LMSM.9	The solution should utilize the Intersection involvement code to "snap" all intersection crashes at one Intersection to the same geospatial location. Note: The business rules pertaining to the distance from an Intersection will be provided once a vendor has been selected. Intersection involvement code usage will be defined by NDOT at a later date.			
H.GEN.LMSM.9.5	The solution must allow for the "snapping" of crashes spot placements to a roadway, intersection, or previously placed spot by a user-friendly method E.g. clicking on a symbol to allow "snapping" NDOT will determine user-friendly once the vendor proposes a solution to this issue.			
H.GEN.LMSM.10	The solution must link the crashes geospatial location to the corresponding reference post (mile post) that are maintained on all Nebraska highway/interstate roadways. Note: The reference post (mile post) database is the property of NDOT and stored and maintained at NDOT. The data is available via IBM DB2 database tables or Microsoft SQL tables.			
H.GEN.LMSM.10.1	The solution must allow the user to control which layer within the map solution is displayed.			
Spot Mapping				
H.L.LMSM.1	The solution must allow for the placement of a vehicle crashes' location upon a geospatial map via a mouse clicking like type of functionality.			
H.L.LMSM.2	The solution must take the previously entered crash location information, as described within the DATA ENTRY section within this document, and pre-zoom the map (H.GEN.LMSM.3 #1). E.g. The officer indicates the vehicle crash was located at the intersection of 17th and South Street, Lincoln NE the map should be pre-positioned as seen within attachment H.L.LMSM.2 Note: Those reports that have a longitude/latitude value entered by the reporting officer should be used as the primary source to zoom the map. Secondary should be the location of crash description data values.	H.L.LMSM.2		
H.L.LMSM.3	The solution must display the previously entered vehicle crash data to the Spot Mapping staff (H.L.LMSM.3 #3) Note: The field's location will be static but the data within the fields will be dynamic; changing as new information becomes available. Sub-Note: The fields represented within (H.L.LMSM.3 #3) are for reference purposes only and are subject to change. It is expected the vendor will work with NDOT staff on which location related fields are needed and their placement. For reference, image H.L.LMSM.3 is the screen size available on a 24" wide monitor.	H.L.LMSM.3		

H.L.LMSM.4	The solution must display the map (H.GEN.LMSM.3 #1) along with the crash data (H.L.LMSM.3 #3) for the current report at the same time.	H.L.LMSM.3		
Location Marking				
H.L.LMSM.5	The solution must allow for NDOT crash location fields ((H.L.LMSM.3 #2). These fields must allow NDOT staff to enter relevant crash location information. This information will be saved and entered into the vehicle crash database under the same crash identified as H.L.LMSM.3 and H.L.LMSM.4 Note: The fields represented within (H.L.LMSM.3 #1) are for reference purposes only and are subject to change. It is expected the vendor will work with NDOT staff on which location related fields are needed and their placement. For reference, image H.L.LMSM.3 is the screen size available on a 24" wide monitor.	H.L.LMSM.3		
H.L.LMSM.6	The solution must allow for the filtering of location work to be done by those reports that have latitude/longitude values or reports without latitude/ longitude values.			
Location Marking Validation				
H.L.LMV.05	The solution must allow for the recording of Spot Mapping checking completed date value within the solution's database. This date must also be routed to NDOT's Content Management System (OnBase) for image routing purposes.			
H.L.LMV.1	The solution must allow for the review of previously entered vehicle crash locations as outlined within the General - Location Marking / Spot Mapping, Spot Mapping, Location Marking to be validated by a human review process.			
H.L.LMV.2	The solution must provide a user interface similar to Google Earth that allows for satellite view as well as map view but using NDOT's base maps Note: NDOT's base maps are created using a Geographic system of North American 1983 mapping standard.			
H.L.LMV.3	The solution must allow the user the ability to display all earlier placed crashes, in a current location, on the map. Note: This should be done in a user-friendly manner e.g clicking on a "show all spot" button. NDOT will make the determination of what is user-friendly once the vendor proposes a solution to this issue. Sub-note: NDOT expects the vendor to work with us on defining the parameters on how far back the "earlier crashes" will be displayed.			
H.L.LMV.4	The solution must allow zooming in and out as well as panning of the map described in H.GEN.LMSM.3.			
H.L.LMV.5	The solution must allow the user to quickly and in a user-friendly manner switch between map view and satellite view. I.e. clicking a button to toggle on and off the different views. Note: User-friendly will be defined by NDOT.			
H.L.LMV.6	The solution must allow for scrolling of the map so that the user can move in all cardinal directions within the boundaries of the state of Nebraska. Note: NDOT is not opposed to allowing the map to function - scroll, zoom, and pan - outside of the bounds of Nebraska, but it should be limited to the continental United States. sub note: This functionality must work with H.GEN.LMSM.4.			
H.L.LMV.7	The solution must display the crashes location(H.L.LMSM.3 #1) as indicated by the data previously entered into the solution's crash database via the DATA ENTRY section described within this document.	H.L.LMSM.3		
H.L.LMV.8	The solution must allow for the updating of the lat/long when the geographic location is changed. This should update the data within the solution's database.			
H.L.LMV.8.1	The solution must allow for the deletion of a crash location "Spot".			

H.L.LMV.8.2	The solution must allow for the non-entry of a crash location "spot" in a user-friendly manner i.e. clicking on a "no spot needed" button. Note: user-friendly will be defined by NDOT.			
H.L.LMV.8.3	The solution must allow the moving of the visual spot on the solutions mapping solution to be moved from one location to another.			
H.L.LMV.8.4	If the incoming crash report has no latitude/longitude data associated with the incoming report the solution's mapping interface must allow NDOT staff to indicated a latitude/longitude "spot" by a user-friendly method e.g. clicking on the mapping interface to place the new NDOT primary geographic(spot) location of the crash. Note: user-friendly will be defined by NDOT.			
H.L.LMV.9	The solution must maintain the original geographic location within the solutions database even in cases that H.GEN.LMSM.6.2 occurs.			
H.L.LMV.10	The solution must not allow for placement of a crash location outside of the geospatial coordinates of the boundaries of Nebraska.			
H.L.LMV.11	The solution must indicate the vehicle's crash location by a spot. Spot sizing will be determined by NDOT once a proposed solution has been created. The spot should be dynamic in nature and size accordingly to the map.			
H.L.LMV.12	The solution must convert an NDOT Reference Post to a Latitude / Longitude value and convert a Latitude / Longitude value to an NDOT Reference Post. Note: The reference post (mile post) database is the property of NDOT and stored and maintained at NDOT. The data is available via IBM DB2 database tables or Microsoft SQL tables.	A current solution that is being utilized by NDOT to accomplish a Reference Post to a Latitude / Longitude is attached. The final solution is left up to the vendor, but subject to NDOT's NDMV, and the OCIO's approval. (H.GEN.LMSM.8.1)		
H.L.LMV.13	The solution should utilize the Intersection involvement code to "snap" all intersection crashes at one Intersection to the same geospatial location. Note: The business rules pertaining to the distance from an Intersection will be provided once a vendor has been selected. Intersection involvement code usage will be defined by NDOT at a later date.			
H.L.LMV.14	The solution must link the crashes geospatial location to the corresponding reference post (mile post) that are maintained on all Nebraska highway/interstate roadways. Note: The reference post (mile post) database is the property of NDOT and stored and maintained at NDOT. The data is available via IBM DB2 database tables or Microsoft SQL tables.			
H.L.LMV.15	The solution must allow for NDOT crash location fields (H.L.LMSM.3 #2). These fields must allow NDOT staff to enter relevant crash location information. This information will be saved and entered into the vehicle crash database under the same crash identified as H.L.LMSM.3 and H.L.LMSM.4 Note: The fields represented within (H.L.LMSM.3 #1) are for reference purposes only and are subject to change. It is expected the vendor will work with NDOT staff on which location related fields are needed and their placement. For reference, image H.L.LMSM.3 is the screen size available on a 24" wide monitor.	H.L.LMSM.3		
H.L.LMV.16	The solution must allow for the routing of crash data and OnBase images to the location marking/spot mapper when an error is discovered in the previously entered LM/SP data.			
H.L.LMV.17	The solution must allow improperly entered locations discovered by H.L.LMV.16 to be documented as incorrect and who did the marking work Note: The solution must work with NDOT's current OnBase Electronic Content Management System's (OnBase).			

H.L.LMV.18	The solution must communicate with NDOT's current OnBase Electronic Content Management System's (OnBase) to update the necessary keywords in Onbase to ensure that the routing process in OnBase correctly routes the image back to the correct working queue when H.L.LMV.16 occurs.			
Location Marking /Spot Mapping Management				
H.L.LMSMM.1	The solution must allow for the generation of a report that returns data on the Location Marking / Spot Mapping completion date and the Spot Mapping checking complete date.			
H.L.LMSMM.2	The solution must route a report from the Location Marking Validation queue within NDOT's Electronic Content Management Systems (OnBase) to the Location error queue. This will require updating of the images data values "keywords" in OnBase.			
H.L.LMSMM.6	In cases that management make a change to the location's latitude/longitude the change must become the locations primary latitude/longitude, but the solution must record the original location latitude/longitude. Note: If the Location Marker Validation staff member changes the locations original latitude/longitude and the Location Marker Manager also changes the Locations latitude/longitude location the solutions database must record the initially reported location, the Location Marker/Spot Mapping staffs new location, and the Spot Mapping Managers new location. Sub-note: The order of precedence when determining the primary locations final latitude/longitude value will be: Spot Mapping Manager, Location Marking/ Spot Mapping, and finally the Reporting office. Meaning, the Spot Mapping Manager's spot placement "trumps" all others as the final crash location.			
AUTO MATCHING PROCESS				
Auto Matching Process				
H.AMPG.05	The solution must apply H.AMP.1 through H.AMP.3 for both the electronic drivers and electronic investigator process.			
H.AMP.1	The solution must query the solution's database to determine if there is a pre-existing case. This querying will be done by checking the incoming report's county, crash date, and vehicle drivers' names and comparing them against the database. If the query returns a perfect match, meaning all values match, then the incoming image will be assigned the pre-existing crash case identifier and the data will update as per the business rules in the NDOT Third Party Electronic Reporting Process section and the image will be assigned the pre-existing case's identifier and moved into NDOT's content management system (OnBase) .	H.TPERP.4		
H.AMP.2	The solution must query the solution's database to determine if there is a pre-existing case. This querying will be done by checking the incoming report's county, crash date, and vehicle drivers' names and comparing them against the database. If the query returns no match, meaning there are no items that match or that the county and date match, but the drivers name doesn't match, then the incoming image will be assigned a new crash case identifier and the data will be moved into the solutions crash database as per the business rules in the NDOT Third Party Electronic Reporting Process section and the corresponding image will be assigned the same case's identifier and moved into NDOT's content management system (OnBase).			
H.AMP.2.1	The solution must have a partial match queue to allow for the placement and subsequent manual matching of partial match reports.			
H.AMP.2.2	The solution must allow for viewing of the image from within the H.AMP.2.1 process.			
H.AMP.2.3	The solution must allow the NDOT partial matching staff to select "Existing Case" which after which H.AMP.1 occurs.			

H.AMP.2.3	The solution must allow the NDOT partial matching staff to select "Existing Case" which after which H.AMP.1 occurs.			
H.AMP.2.4	The solution must allow for NDOT's partial matching staff to select "Exit" at which time the current case being matched will remain in the partial match queue and the staff will be allowed to exit.			
H.AMP.2.5	The solution must have secure access to the partial matching data and images allow only authorized NDOT employees access this functionality within the solution.			
H.AMP.3	The solution must query the solution's database to determine if there is a pre-existing case. This querying will be done by checking the incoming report's county, crash date, and vehicle drivers' names and comparing them against the database. If the query returns a partial match, meaning that the county and date match, but only one driver's name matches, then the incoming image and the data will be moved into the solutions partial match queue to await manual processing as per the business rules in the NDOT Third Party Electronic Reporting Process section.			
LEGACY SYSTEM DATA				
<i>Legacy system data - General</i>				
H.LSD.GEN.1	The solution will not migrate any of the historical vehicle crash data into the solution's vehicle crash database.			
<i>Legacy system data - HLA</i>				
H.LSD.HLA.1	The solution must export limited data from the solution's database into the legacy vehicle crash database (IBM z/OS mainframe Cobol/CICS batch and online) for the sole purpose of providing the data elements needed for the HLA legacy software to continue to function. The data fields needing to be exported from the solution's database to the legacy vehicle crash database are within the code provided as attachment H.LSD.HLA.1. The data provided to the legacy system will be in a usable format and will not require any manipulation before it can be uploaded into NDOT's legacy vehicle crash database; NDOT will make the final decision on what is acceptable, useable data. Note: Due to the structure layout of the new MMUCC 4+ tables and NDOT's legacy system it is expected that some data manipulation on the vendor's part will have to be performed to enable the new MMUCC 4+ elements to work within the legacy vehicle crash database.	H.LSD.HLA.1		

	Legacy system data - HSN			
H.LSD.HSN.1	The solution must export limited data from the solution's database into the legacy vehicle crash database (IBM z/OS mainframe Cobol/CICS batch and online) for the sole purpose of providing the data elements needed for the HSN legacy software to continue to function. The data fields needing to be exported from the solution's database to the legacy vehicle crash database are within the code provided as attachment H.LSD.HSN.1. The data provided to the legacy system will be in a usable format and will not require any manipulation before it can be uploaded into NDOT's legacy vehicle crash database; NDOT will make the final decision on what is acceptable, useable data. Note: Due to the structure layout of the new MMUCC4+ tables and NDOT's legacy system it is expected that some data manipulation on the vendor's part will have to be performed to enable the new MMUCC 4+ elements to work within the legacy vehicle crash database.	H.LSD.HLA.1		
	Legacy system data - Storefront			
H.LSD.SF.1	The solution must allow for NDOT's Storefront process to continue to function. At its basic level, Storefront queries the current NDOT vehicle crash database to retrieve a vehicle crash identifier. This identifier is then passed to NDOT's content management system (OnBase) to return only the investigator's image.	H.LSD.HLA.1		
	Legacy system data - DMV Access			
H.LSD.DMV.1	The solution must allow the Nebraska DMV's mainframe database to communicate with the solutions database. Currently the Nebraska DMV has access to "view" NDOT's mainframe database. The solutions should allow Nebraska's DMV the necessary real time access to the solutions data without giving them the ability to edit the data. Note: The proposed solution must both be acceptable by NDOT and Nebraska's DMV.			
	NIGHTLY BATCH PROCESS			
	General - Nightly Batch Process			
H.NBP.1	The solution must recreate the nightly batch process. NDOT is not expecting the vendor's solution to duplicate the process, but to recreate each of the individual functions somewhere within the solution. Each proposed solution must accomplish the same functionality as the current NDOT solution, but with the MMUCC 4+ enhancements. NDOT will make the final decision on what is an acceptable solution to each of the functions once the vendor provides a proposes solution to the issue. Note: This process interacts with the OnBase process that generates the Frontsheet document within OnBase.	H.NBP.1		
	BASIC DATA SUMMARY (BDS) REPORT			
	Basic Data Summary Report - On System			
H.BDS.1	The solution must allow for the creation of BDS reports (Attachment H.BDS.1).	H.BDS.1		
H.BDS.2	The solution must allow an authorized NDOT employee to select a date range, highway number, reference post number. Note: The solution must allow for up to three (3) highways to be selected within the same data range.			
H.BDS.3	The solution must allow inclusion or deletion of selected vehicle crash identifiers from a query before the report is run. E.g. The user enters the date range, highway number, and reference post number, and then wants to include or delete a predetermined crash identifier. The finished BTD report should produce a report with the inclusion or delete of the specified vehicle crash identifier crash information.			

	Basic Data Summary Report - Off System			
H.BDS.4	The solution must allow for the creation of BDS reports (Attachment H.BDS.1).	H.BDS.1		
H.BDS.5	The solution must allow an authorized NDOT employee to enter as many vehicle crash identifiers within the BDS user interface. NDOT would prefer that the entry process would be one of a "cut and paste" approach or an uploading of a file into the solution's BDS report summary process. NDOT will make the final determination on acceptance once the vendor proposes a solution.			
H.BDS.6	The solution must allow for the entry of report header information on Off System BDS reports. Note: The final report header information for Off System BDS reports will be decided once a proposed solution has been presented by the vendor.			
NDOT THIRD PARTY ELECTRONIC REPORTING PROCESS				
General - NDOT Third Party Electronic Reporting Process				
H.TPERP.1	The solution must allow for secure data receipt of incoming third party vehicle crash XMLs.			
H.TPERP.2	The solution must only allow authorized third party entities access to the solution's vehicle crash reporting incoming report process.			
H.TPERP.3	The solution must validate all incoming third-party XML data against NDOT's XSD 3.0 to ensure all minimum requirements have been met.			
H.TPERP.4	The solution must process all third-party crash reports that passed H.TPERP.2 and H.TPERP.3 via the business rules outlined in attachment H.TPERP.4. Note: It is expected that the vendor will work with NDOT to refine our process validation rules and process. NDOT will have the final say on what is an acceptable upgrade. Sub-Note: Attachment H.TPERP.4 is to be used for reference and estimated purposes only. The process is expected to change in the new solution; mainly in how NDOT addresses driver related data.	H.TPERP.4		
H.TPERP.5	The solution must notify the third party entities of all vehicle crash reports that don't pass NDOT's XSD 3.0 validation.			
H.TPERP.6	The solution must provide third party reporting entities with a detailed description of the error/s that occurred during H.TPERP.3, H.TPERP.4, and H.TPERP.5 during the XML transmittal/acceptance process.			
MANAGEMENT				
General - Management				
H.GM.1	The solution must allow authorized NDOT staff to query individual and group level productivity and errors from work being performed or was performed within the vendor's solution. Note: Query parameters will be defined once the vendor proposes a solution.			
H.GM.2	The solution must allow for the visual display of H.GM.1 e.g. dashboard.			
H.GM.3	The solution must allow H.GM.1 to be exported out into a useable report e.g. Excel spreadsheet.			

H.GM.4	The solution must allow for the deletion of a vehicle record and allow another vehicle in the same crash to be renamed as the deleted vehicle without losing the renamed vehicle crash data.			
H.GM.5	The solution must allow for the generation of a new frontsheet (H.LSD.SF.1) when an authorized NDOT employee request one generated. New frontsheet generation should be done via a user-friendly manner e.g. pressing a "generate frontsheet" button. Note: NDOT will make the final determination on what will be a user-friendly manner once the vendor proposed a solution.			
H.GM.6	The solution must allow for the creation of a deleted crash report, to be run by authorized NDOT employees only. This report will summarize any crashes that had previously been processed via Location marking /Spot mapping but had later been deleted. Note: It is expected that the vendor will work with NDOT to define the report's parameters. NDOT will make the final determination on acceptability.			
H.GM.7	The Solution must allow for the separation of two previously reported crashes (first and second crash). Authorized NDOT staff should be able to select what data is to be associated with which crash. E.g. A four vehicle crash could be split into two separate crashes with vehicle #1 and #3 in on crash and #2 and #4 in the other crash. Note: Un-associating a case must maintain all the vehicle crash data which will be reassigned to a new unique crash identifier.			
H.GM.7.5	The solution must route the case back to Data Entry and allow for all functionality to be executed as described in the Data Entry section of the HSI Requirements Traceability Matrix when H.GM.7 has been completed.			
H.GM.8	The solution must allow for the discovery of duplicated entered cases. Once discovered an authorized NDOT employee should be able to execute any or all of the above options - H.GM.7, H.GM.6, and H.GM.4 Note: Due to the new MMUCC upgrade additional functionality might be required for this task. It is expected that the vendor will work with NDOT to define the needed requirements.	H.GM.8		
H.GM.9	The solution must allow authorized NDOT staff to delete or undelete a vehicle crash report or vehicle crash case. Note: All deleted crashes should be maintained within the solution's database for thirty(30) days before the final purge.			
H.GM.10	The solution must require a reason to be entered when H.GM.9 occurs. The minimum information that will be retained is a crash date, county, driver's involved full name, authorized NDOT staff deleting the case, and the reason for case deletion.			
SQL Data Migration				
<i>General - SQL Data Migration</i>				
H.SQL.DM.1	The solution must only migrate data that was newly created or updated from the previous day to NDOT's SQL server. Note: Incoming data must use SQL 2016 or greater.			
H.SQL.DM.2	The solution must migrations the solution's data to NDOT's database warehouse at a minimum of once every 24 hours. The solution must migrate the data in some type of acceptable format that can be uploaded into a minimum of SQL Server 2016. Note: The ideal solution would migrate the data to SQL Server once an hour. Sub Note: NDOT reserves the right to determine what is an acceptable format for migrating data to NDOT's SQL Server.			
H.SQL.DM.3	The vendor agrees to provide NDOT with the solution's database complete schema as soon as it has been developed. NDOT is expecting to receive Alpha, Beta, and the final schema as soon as they have been developed. Note: NDOT requires these schemas as they are being developed due to our need to update our internal database cubes to accommodate the vendor's solution design.			

OPTIONAL

	DATA QUERIES			
N/A	Note: The vendor will not be scored on H.SQ.1 through H.SQ.5 but NDOT is expecting a response to each item (H.SQ.1 - H.SQ.5). NDOT reserves the right to include H.SQ.1 through H.SQ.5 in the scope of this project. If NDOT decides to execute this option the standard Change Control process within the main RFP will apply.			
	Data Queries - Map			
H.SQ.1	The solution must allow querying of the archived data, for all ten (10) years, to be as easily accessible as outlined in the Data Queries - Drag and Drop Data Queries and Data Queries - Coding sections.			
H.SQ.1.1	The solution must allow for the querying of the complete solution's vehicle crash database.			
H.SQ.1.2	The solution must allow the user to make basic parameter selections when performing H.SQ.2 and H.SQ.3. Some of these basic parameters are a date range, county, crash severity, and first harmful event. Note: The final basic parameters will be defined by NDOT once the vendor has been selected and the vendor requests this information.			
H.SQ.2	The solution must allow for the querying of predetermined - to be defined later, but would likely duplicate attachment H.SQ.2 with modification to reflect the new MMUCC 4+ elements - data fields by the use of a satellite and map view (attachment H.GEN.LMSM.3) of a roadway intersection or roadway segment e.g. Google Earth.	H.SQ.2 / H.GEN.LMSM.3		
H.SQ.3	The solution must allow the user to draw an outline around a roadway intersection or roadway segment as outlined in H.SQ.1.2 and H.SQ.2 and return the values as defined within H.SQ.2.			
H.SQ.4	The solution must export the data out in an Excel format to an NDOT approved file location as per H.SQ.2 e.g. the PC's local hard drive.			
H.SQ.4.1	The solution must visually display a vehicle crash "spot map" that can be printed and/or saved as a pdf file.	H.SQ.4.1		
H.SQ.4.2	The solution must allow for the visual representation of different vehicle crash types by some form of indicator. E.g. red for fatal, orange for injured, green for property damage only and/or with the use of symbols.			
H.SQ.5	The solution must allow access to the data queries-map functionality (H.SQ.1 - H.SQ.5) to both internal NDOT and external users. This access will follow H.RA.2.			