

Houston Roadway Flood Warning System

Questions and Answers

The following are questions and answers (Q&A) the City has received for the Houston Roadway Flood Warning System Project. The City will continue to update and post Q&A list every Friday up to

Proposer can continue to submit questions to:

swright@houstontranstar.org

October 2, 2020

1. Cover Page – Why is the HITS logo on the RFP? **Answer: Logo has been removed from the RFP Cover sheet.** Is this project related to HITS in anyway? **Answer: No, any reference to “HITS” has been removed.**
2. Various Locations – “HITS” is referred to throughout the document. Is this project related to HITS in anyway? Does the City mean HRFWS when it states HITS? **Answer: No, any reference to “HITS” has been removed.**
3. Section A.2&3 – Section A.2 requires ConOps be followed. ConOps includes gates and DMS. Section A.3 does not mention gates. Are gates and DMS part of the deployment? **Answer: Gates are to be recommended by Proposer if it is determined they are needed. City preference is for manual cattle guard type gates. ConOps has been corrected.**
4. Section A.3 requires the team coordinate with Trafficware and Econolite.
 - a. Can the City provide contact information for these organizations? **Answer: City has provided to the Proposers.**
 - b. How will the City ensure these organizations availability, consistency and fairness amongst Developers? **Answer: It is the proposer’s responsibility to work the different traffic management systems developers.**
 - c. RFP states Trafficware and Econolite software “shall be modified”. Is Developer responsible for modifying other’s software? **Answer: Addressed in RFP.**
5. Section A.5 – The City will generate a contract DBA after the fact and the selected will not be allowed to make any changes to the DBA. Would the City consider generating a representative contract DBA prior to Proposal submission to eliminate the unknown aspects of the DBA and to help the proposers better evaluate their associated risks and responsibilities? **Answer: The DBA will follow the City Standards.**
6. Section A.7 – What is the MWSDBE requirement for this project? Is our SOQ proposed participation acceptable? **Answer: This project is required to make a Good Faith Effort; it does not have an established goal. However, the City’s Office of Business Opportunity (OBO) will be monitoring the proposer’s Good Faith Effort to make sure it meets the City’s standards.**

7. Section A.11 states Developer shall guarantee “Mid-Block Count Stations, Enhanced Detections” yet these are not part of the project. **Answer: “Mid-Block Count Stations, Enhanced Detections” has been removed.**
8. Section A.11 states Developer shall guarantee “...all products described in HITS System Requirements”. Should this be HRFWS rather than HITS? **Answer: This has been corrected to HRFWS.**
9. Section B.4 states COH will issue a draft RFP for Developer comment prior to issuing a Final RFP. Where in the Procurement Schedule (Section B.2) is this review phase? **Answer: The City received Proposers questions and comments. Addendum to RFP documents will be issued for final RFP.**
10. Pages 16 and 23 refer to Exhibit B, Price Proposal but it is not found in the project documents. Please provide Exhibit B. **Answer: Exhibit B to be provided.**
11. Section C.1 – The preparation of a quality proposal depends on the answer and clarifications requested herein. We request a notable extension of the due date for this proposal. **Answer: New submittal dates identified in final RFP.**
12. Section C.5 weighs the interview as 10% of the score yet the interview is not part of the Procurement Schedule. When will the interview be? See Question 14 below. **Answer: One-on-One comments and questions with proposers on the following dates October 12, October 13, and October 14, 2020. A one-on-one interview will be held with Proposers only if bids received are close.**
13. Section C.5.a.1.a requires Developer coordinate with TxDOT.
 - a. Please provide the TxDOT contact. **Answer: TxDOT contact to be provided by the City.**
 - b. How will the City ensure TxDOT availability and consistency? **Answer: TxDOT is a stakeholder in the project, therefore there are no foreseen issues with TxDOT refusing to coordinate or cooperate.**
 - c. This section refers to a HRFWS Systems Requirements spreadsheet that could not be found in the project documents. Please provide the HRFWS System Requirements document. **Answer: Included in Systems document attached to final RFP.**
14. Section C.5.c describes the interview, but it is not listed in the Procurement Schedule.
 - a. Where in the Procurement Process is the interview? **Answer: Interviews will be held for proposers whose bids are close.**
 - b. Will all short-listed firms be invited to interview? **Answer: Interviews will be held for bids that are close.**
15. Section C.5.d requires three references for each of seven ITS devices for a total of 21 references. Is it ok to include a single reference for more than one devices? For example, can a project that included five of seven devices be considered sufficient? **Answer: The Proposer is to provide the number of references requested in the RFP.**

October 5, 2020

16. Should the email subject line for questions be "HITS Project" (as indicated in Section B.5 on Page 11)? **Answer: "HITS Project" changed to HRFWS.**
17. Several documents are referenced in the RFP but not provided. Please provide:
- a. Exhibit B – Price Proposal **Answer: Included in final RFP.**
 - b. Exhibit C – DBE Certificate / MWSBE Commitments **Answer: Included in final RFP.**
 - c. Exhibit D – Buy American Certificate **Answer: Included in final RFP.**
 - d. HRFWS Requirements Response spreadsheet (P. 18 of RFP) **Answer: Included in final RFP.**
18. A.5. Project Contract (DBA) Documentation and FHWA Requirements/Exhibits (Page 4 of RFP) includes two links for additional documents. These links do not connect with the listed documents. Please provide corrected links for the Standard Front-End Documents and General Requirements. **Answer: Links checked and are working.**
19. We are excited to meet with the City on Oct.13. Please provide an agenda for this meeting. Please also confirm this meeting will be held virtually Microsoft Teams. **Answer: No specific agenda provided to Proposers. The meeting was designed to listen to Proposers comments and discuss concerns. The meeting was virtual via Microsoft Teams.**
20. The RFP discusses one-on-one meetings (B.3.b, P.10), an industry Review (B.4, P.11) and a Presentation/Interview (C.5.c, P. 23). The meeting invitation for our meeting on Oct. 13 was titled, "Interview Proposing Contractor." Can you please clarify:
- a. This the one-on-one meeting listed in B.3.b? **Answer: October 13th one-on-one meeting will be to listen to Proposers concerns and comments about the project.**
 - b. If so, will an Industry Review be held? **Answer: It was part of the one-on-one Proposer meetings.**
 - c. When will the Presentation/Interview (listed in C.5.c) be held? **Answer: One-on-One presentation and interview will be held only if bids received are close.**

October 7, 2020

21. Field investigation

- a. The RFP Proposal Letter includes the following acknowledgement: "Proposer acknowledges and agrees to the following...Proposer conducted field investigations as necessary..." (second page of proposal letter). We are available visit the sites at the convenience of the City of Houston. Please provide a schedule of times when we can review each location and conduct field investigations. **Answer: Meeting dates and times will be coordinated with the City, TxDOT, and Harris County; Proposers will be notified of their schedule.**

22. Document Request

- a. Please provide as-built drawings for existing storm water pump stations (Electrical and Civil drawings). **Answer: City of Houston as-built drawings for**

existing storm water pump stations are housed at 1002 Washington Ave., Houston, Tx 77002.

- b.** Please provide Specification Documents that apply to the scope of work
Answer: Provided in final RFP.

23. Con-Ops Questions

- a.** **Figure CO-3A** System Activation Sequencing for Underpass Locations with Pump Stations (P. 10 of ConOps) say gates are to be closed after street sensors are activated. Please clarify as RFQ said no gates. **Answer: Figures have been corrected. Gates are to be recommended by the Proposer as determined if needed. City prefers manual cattle guard type gates.**
- b.** **VIII. Traffic Flow Management During Flooding Events** (P. 14 of ConOps): Please provide the requirements in the ConOps to provide alternate timing on adjacent roadways. What is our guide for determining which and how many intersections will receive alternate timing? Page 16 says timing plans may be developed by City Traffic Engineer (CTE). Please clarify under what circumstances this will be done by CTE or the Proposer. **Answer: Maintaining agency is to provide alternative routes and signal timing plans.**
- c.** **X. Evaluation of Enhanced Flood Warning Systems after an Event** (P. 15 of ConOps): Please define what is considered a weather event. In the event of such event, how are to document driver compliance at 40 locations? Please clarify if this will be achieved by sampling locations or some other method. **Answer: Selected Proposer will work with the City to develop evaluation criteria and what is considered an actual weather event.**

24. RFP Questions

- a.** **A.11 – Warranty** (P.6)
 - a.** Please clarify the required warranty term. Will the warranty begin on final acceptance of each individual site or final acceptance of the entire project? **Answer: Warranty shall begin with the full acceptance of each individual site. Warranty shall be for three (3) years with options for 4th and 5th years.**
 - b.** The second bullet point lists items that are to have a two-year warranty. Is this list exhaustive or should it include generators, back flow preventers, etc.? **Answer: The generators and back flow preventers will follow the three (3) year warranty and will provide options for a 4th and 5th year.**
 - c.** Please clarify what HITS system requirements we should meet. (“Electronic, electrical, and mechanical equipment, technical data, software and all products described in the HITS System Requirements.”) **Answer: HITS has been removed and HRFWS has been identified.**
- b.** **A.12 – Maintenance** (P.6)
 - a.** (A.12.b Emergency Maintenance, P. 7) Clarify how Proposer will be compensated for situations where emergency maintenance is not a warranty issue, e.g. the equipment was damaged by a vehicular accident or some force of nature. **Answer: Has been clarified in the final RFP.**

- b. Please provide an exhaustive list of maintenance tasks. **Answer: *Maintenance is to cover all system components.***
- c. **A.13 – Spare Parts (P.8)**
 - a. Please clarify which items are required to be in inventory. For example, are all items (including big-ticket items such as generators) required to be kept in inventory? **Answer: *Two (2) natural gas generators. All key system components.***
 - b. Please clarify what percentages are required per device type (RFQ says, “Ensure the City of Houston inventory has 10-20 percent inventory of key components...”) **Answer: *20%***
 - c. If Spare Parts are utilized during the 2-year maintenance period, is the Proposer responsible for replenishing the inventory in order to maintain the 10-20% inventory levels? **Answer: *Maintenance period is now 3-years, and City inventory must be maintained at 20% throughout that period.***
- d. **B.2 – Procurement Schedule (P.10) – Additional time is required in order to provide the City with the most accurate pricing. Can the proposal due date be adjusted to November 20? **Answer: *Date has been adjusted and is identified in final RFP.*****

25. General Questions

- a. **Questions and Answers** pdf (from RFQ phase): The questions from the RFQ stated that the completion date was December 7, 2023, (May 15, question 4) and that this date was tied to grant funding. The RFP states the closeout date will be October 2025 (**A.14**, P. 9 of RFP). Has the grant funding been extended? **Answer: *No.***
- b. Has the City completed all ROW acquisition and easements for any required gas lines? In the event this is incomplete, how will any delay affect warranty length? **Answer: *No. This will be evaluated and done on a case by case basis.***
- c. The TIGER grant application (P.3) states that there will be battery back-up power at FWS-only installation locations. Please provide required back up runtime. **Answer: *Runtime should be indefinite.***
- d. Power Outages and Electrical Shutdowns will be required to integrate the new generators and automatic transfer switches. Please provide the parameters (i.e. allowed duration, allowed days and times, etc.) for allowable outages. Also, please clarify whether the Proposer will be required to provide temporary power or temporary by-pass pumping during these outages. **Answer: *Yes. All work should also be done at pump stations at Night-Time from 11:00 PM to 5:00 AM. Proposer to notify City and TxDOT 2 weeks prior to shut down.***
- e. Many of the pump stations have existing diesel-powered generators (TxDOT locations). Is it the City’s intention that the Proposer will replace the diesel-power units with natural-gas powered units? **Answer: *No per TxDOT direction.***
- f. Section C.5.b.1 of the RFP (P. 23), states that the Proposer shall provide a Grand Total Price. However, the 7th bullet item under the Design header for Item D – Preliminary Scope of Services (P. 26), states that there will be cost revisions

during the design phase of the project. (A Project planning phase after DBA award is also mentioned under C.5.b., P. 23). Does that mean that there will be a second pricing exercise after the D/B Firm is selected and after a DBA is issued? If so, please elaborate on how that process will work? **Answer: There will be no more negotiation after the project has been awarded.**

- g.** Please confirm whether solar-powered advanced warning flashers will be allowed. **Answer: Hard wire power is preferred, but solar can be considered on a case by case basis.**
- h.** Will the RFWS be able to use existing cameras? **Answer: All equipment to be replaced.**

26. Unanswered Questions from RFQ Process

- a.** Although there are many requirements regarding MWSBE in the RFQ, there is not a stated goal. Can the City please clarify the goal MSWBE goal?
 - a.** Answer Provided during RFQ process: "The City of has a standard 24% goal for Professional Services and a 18% goal for Construction. However, at this time a MWBE participation goal has not been established for this Design-Build project. An Addendum will soon follow."
Answer: This project has been identified as a GOOD FAITH EFFORT project. No specific goal has been identified but the Proposer must make a good faith effort to reach standard City requirements.

October 8, 2020

- 27.** Please reference the RFP document Section C.5.b. Price Proposal states that the price proposal shall be completed using Exhibit B. Where is Exhibit B located? Please advise. **Answer: Included with the final RFP.**
- 28.** When will the Presentation/Interview (listed in C.5.c) be held? **Answer: These are at the City's discretion and will be used if bids are close.**

October 14, 2020

Questions from One-on-One (10/13)

- 29.** When will answers and the remaining RFP documents be posted? **Answer: November 23, 2020.**
 - a.** Exhibit B – Price Proposal **Answer: Included in the finals RFP.**
 - b.** Exhibit C – DBE Certificate / MWSBE Commitments **Answer: Included in the finals RFP.**
 - c.** Exhibit D – Buy America Certificate **Answer: Included in the finals RFP.**
 - d.** HRFWS Requirements Response spreadsheet (P. 18 of RFP) **Answer: Included in the finals RFP.**
- 30.** Additional time is required in order to provide the City with the most accurate pricing. Can the proposal due date be adjusted? **Answer: Adjusted and included in the final RFP.**

31. The RFP states the closeout date will be October 2025 (A.14, P. 9 of RFP). Has the grant funding been extended? **Answer: No.**
32. Although there are many requirements regarding MWSBE in the RFQ, there is not a stated goal. Can the City please clarify the goal MSWBE goal? **Answer: This project has been identified as a GOOD FAITH EFFORT project. No specific goal has been identified but the Proposer must make a good faith effort to reach standard City requirements.**
33. The Concept of Operations document states that “natural gas-powered generators will be installed at pump stations.” (Page 3, 4th paragraph) The TxDOT pump stations have existing generators, which appear to be natural gas units. Is the City requiring replacement of these existing natural-gas powered units with new natural-gas powered units? If the existing unit is a diesel-powered unit, is the intention to replace the generator with a new natural-gas unit? **Answer: No. TxDOT pump stations will not be replaced.**
34. There are 9 projects with COH requiring backflow preventers and 12 COH projects requiring generators and backflow preventors. Many of the storm sewer systems that drain the low areas at the project sites outfall to larger storm sewer systems – not directly to bayous or channels. For any project requiring a backflow preventor (for all entities), have the locations of the backflow preventors been identified?
- a. For instance, if there is a mile of storm sewer prior to a discharge to a channel, has the City identified where along that alignment, a duckbill valve or flap gate in a junction box should be placed? **Answer: These recommendations to be developed during the design phase.**
35. In addition, if the backflow preventor is to be in line with the storm sewer and not at the outfall, has a hydraulic model been performed to confirm the backflow preventor does not increase head loss to the point that it increases flooding upstream of the backflow preventor or is that something that is required during the design? **Answer: This work is to be done during the design phase.**
36. There are two COH pump stations (Project 4 and 5) in the med center where generators are required. These pump stations are underground, except the control panel, and on very restricted sites. Does the City have any preliminary thoughts or requirements for the generators at these two sites? **Answer: This will be a recommendation by the Proposer in the design phase.**
37. There are locations where backflow preventors are required where there are pump stations – (COH and TxDOT). Can the client please explain the purpose of the backflow preventors at these locations?
- a. The tailwater condition does not change and if the pump turns on, it would be restricted on pumping in either condition (with or without a BFP) – was there a separate intent for where the backflow preventor would be located at these locations? **Answer: This will be a recommendation by the Proposer in the design phase.**
38. Please clarify what HITS system requirements we should see. (“Electronic, electrical, and mechanical equipment, technical data, software and all products described in the

HITS System Requirements.”) **Answer: Project is not a HITS project. Changed to HRFWS.**

39. Will we need to purchase software licenses for each of the traffic signal controllers or will the City provide them? **Answer: No. The City has these.**
40. The Concept of Operations document (Page 5) states that the Backup Natural Gas Generators are intended to provide the capability for “advance and approach flashing lights, Pan-Tit-Zoom (PTZ) CCTV cameras and wireless communication of these devices and sensor will be maintained to the central traffic management system” during a loss of power event. Some of these devices will be located at decision points that will be blocks (possibly miles) away from the pump station. Typically, these devices would be put on a separate electrical service with its own back-up battery system. Is it the intention of the City that the Scope of Work shall include installing emergency power circuits all the way from the pump station to the more remote ITS devices (i.e. Advance Warning “yellow flashers”) located substantial distances from the pump station? **Answer: This has been addressed in the ConOps and will be considered on a case by case basis if distance to the advanced flashers becomes an issue.**
41. Please clarify your expectations on survey/Sue requirements versus using aerials in design. Is this at discretion of the engineer? **Answer: Surveying should follow City’s Infrastructure Design Manual ((IDM) and General Requirements for Field Surveying.**
42. Does the City have right-of-way (ROW) information we can use? **Answer: No. This will be evaluated and done on a case by case basis.**
- a. In the event this incomplete, how will any delay affect warranty length? **Answer: Warranties are established by a site being complete and final acceptance from the City has occurred.**
43. Traffic Flow Management During Flooding Events (P. 14 of ConOps): Please provide the requirements in the Con-Ops to provide alternate timing on adjacent roadways. What is our guide for determining which and how many intersections will receive alternate timing? Page 16 says timing plans may be developed by City Traffic Engineer (CTE). Please clarify under what circumstances this will be done by CTE or the Proposer. **Answer: Maintaining agency is to provide alternative routes and signal timing plans.**
44. On other projects, the City of Houston has required that all equipment must be located at an elevation two feet above the 500-year floodplain. Does this project have similar requirements for the generators, transfers switches, and other equipment? Are we to adjust any existing equipment to meet this requirement? **Answer: Yes, adjustments and designs will need to meet City 500-year floodplain requirements.**
45. City was moving from WIMAX to aircards. Will those devices be made available by the City to each location within the City? **Answer: City is moving to air cards, City will provide.**

46. Can the project assume the City/County would be able to leverage their existing contracts to provide Econlite software for these 40 locations? **Answer: That is not a part of this project.**
47. If at a pump station, an alert is identified at a particular location through the TMS, the alert ends up at Transtar – does that same alert need to sound at the Harris County site or is Harris County only concerned with their site locations? **Answer: Each agency (City, TxDOT, Harris County) should only get notifications on their equipment. However, should show up on TranStar map.**

Additional Questions (previously submitted, resubmitted per one-on-one request)

48. The RFP indicates ATMS, now for the City locations, Econlite Centracs for the County locations, and a third unnamed TxDOT central system – this would indicate potentially 3 different local controller firm ware deployments. Page 18-19, section C.5.a.1.a **Answer: That is correct, and it will be up to the Proposer to confirm and develop system that will communicate and meet needs of all three agencies.**
49. Will we need to purchase a center-to-center module to allow the ATMS.now system to talk to the County and TxDOTS central systems (push the ATMS.now data into Centracs)? **Answer: This will be based on Proposer's recommendation.**
50. Who will be installing and configuring the center-to-center, module if one is necessary? **Answer: Selected Proposer will be installing configuring the center-to-center if it is required.**
51. Will the City, County, and TxDOT allow for interfacing with their adjacent traffic signal cabinets (to prevent movements onto the closed roadways)? **Answer: Proposer will coordinate with each agency on a case by case basis to determine the need.**
52. Please define what data from this RFWS project is required to be integrated into the COH Groveway operations center. **Answer: All data.**
53. At the TxDOT locations, the existing generators are housed indoors. If the replacement generator has a large physical footprint, is the Proposer responsible for including the cost of all building, ventilation, and exhaust modifications that may be necessary to accommodate the new natural gas generator? **Answer: This will be based upon the Proposer's recommendations.**
54. The Concept of Operations document (page5) states that the Backup Natural Gas Generators are intended to provide the capability for “advance and approach flashing lights, Pan-Tilt-Zoom (PTZ) CCTV cameras and wireless communication of these devices and sensor will be maintained to the central traffic management system” during a loss of per event. Some of these devices will be located at decision points that will be blocks (possibly miles) away from the pump station. Typically, these devices would be put on a separate electrical service with its own back-up battery system. Is it the intention of the City that the Scope of work shall include installing emergency power circuits all the way from the pump station to the more remote ITS devices (i.e. Advance Warning “yellow flashers”) located substantial distances from the pump station? **Answer: This has been addressed in the ConOps and will be**

considered on a case by case basis if distance to the advanced flashers becomes an issue.

55. Please specify the standard runtime requirements for back-up battery units. ***Answer: Runtime should be indefinite.***
56. During our initial site visits, it appears that some of the locations have existing backflow preventers. Is it the intention of the City that the Proposer shall replace these existing units? If replacement is required, please provide specifications regarding what should be provided. ***Answer: This recommendation will be made by the proposer in the design phase.***
57. During our initial site visits, it appears that some of the locations have existing advance warning flashers signs. Is it the intention of the City that the Proposer shall replace these existing units, or would it be acceptable to upgrade and use these units? ***Answer: No. All equipment to be replaced.***
58. Please provide as-built drawing for existing storm water pump stations (Electrical and Civil drawings). ***Answer: City of Houston as-built drawings for existing storm water pump stations are housed at 1002 Washington Ave., Houston, Tx 77002.***
59. Please provide Specification Documents that apply the scope of work. ***Answer: Added with final RFP.***
60. Figure CO-3A System Activation Sequencing for Underpass Locations with Pump Stations (p. 10 of ConOps) says gates are to be closed after street sensors are activated. Please clarify as RFQ said no gates. ***Answer: Gates are to be recommended by the Proposer as determined if needed. City prefers manual cattle guard type gates.***
61. VIII. Traffic Flow Management During Flooding Events (p. 14 of ConOps): Please provide the requirements in the Con-Ops to provide alternate timing on adjacent roadways. What is our guide for determining which and how many intersections will receive alternate timing? Page 16 says timing plans may be developed by City Traffic Engineer (CTE). Please clarify under what circumstances this will be done by CTE or the Proposer. ***Answer: Maintaining agency is to provide alternative routes and signal timing plans.***
62. X. Evaluation of Enhanced Flood Warning System after an Event (p.15 of ConOps): Please define what is considered a weather event. In the event of such event, how are we to document driver compliance at 40 locations? Please clarify if this will be achieved by sampling locations or some other method. ***Answer: Selected Proposer will work with the City to develop evaluation criteria and what is considered an actual weather event.***
63. All – Warranty (p.6)
- a. Please clarify the required warranty term. Will the warranty begin on final acceptance of each individual site or final acceptance of the entire project?
Answer: Warranty shall begin with the full acceptance of each individual site. Warranty shall be for three (3) years with options for 4th and 5th years.
 - b. The second bullet point lists items that are to have a tow-year warranty. Is this list exhaustive or should it include generators, back flow preventers, etc.?
Answer: List includes all system components, generators and back flow

69. Please confirm whether solar-powered advanced warning flashers will be allowed. **Answer: Hard wire power is preferred, but solar can be considered on a case by case basis.**
70. Will the RFWS be able to use existing cameras? **Answer: No. All equipment is to be new.**
71. Will an Industry Review be held? **Answer: This was done with the one-on-one meetings held October 13-15, 2020.**
72. When will the Presentation/Interview (listed in C.5.c) be held? **Answer: This will be at the City's discretion and will only be used if the bids are close.**

October 15, 2020

73. Would the City consider pricing flexibility, i.e., negotiable as more becomes known about specific site locations such as number of devices, length of conduit and cable, and other material quantities? **Answer: Proposer to provide best solution/design.**
74. Would the City consider other innovative (integrated) solutions different than Studemont/Lorraine that might add value and reduce capital/maintenance costs? **Answer: Proposer to provide best solution/design.**
75. For the locations marked as TxDOT (green on the map), these appear to be in the Houston City limits and thus, maintained by City of Houston, if that's the case, do these locations follow City of Houston Specs for the signal cabinet and other items? **Answer: City of Houston Maintained signal cabinets, should follow City Specs.**
76. How does the City want to communicate the processed signal (Turn on Beacons) from the main cabinet to the flashing beacons? Do you want to use point to point radios like at Studemont or hard wire via conduit in the ground like at Lorraine or are you open to other solutions such as cellular based communications in lieu of the point to point radios? **Answer: City will be using air cards that will be provided by the City.**
77. The master control station is stated to be a modified traffic signal cabinet. (At Studemont and Lorraine a City of Houston Spec. 346 was partially stripped down) This project will also involve Harris County and TxDOT. I do not believe that Harris County has a 346 specification. (Probably not a big issue as they could adopt COH specs). The real issue would be that TxDOT does not have any familiarity with the 33X style cabinets at all. Would a 12-position base mount cabinet be required at TxDOT sites? Or would it be possible to utilize something more like a School Zone Flasher Cabinet? **Answer: Proposer to develop design that will be accepted by all agencies.**
78. A2070 is utilized at both Studemont and Lorraine to allow an alarm to be generated on the City's ATMS.Now platform. Will you be requiring a 2070 as the method of alarm transmission or would it be possible to have an input come in via an open API Source? (We are considering using the Glance System Management Software that would control communications and allow for the status of the flood beacons to be added to the Travel Safely phone application for ease of communication to the traveling public. This is the same driver alert system that we are proposing to utilize on the School Zone Flasher project. The Glance software platform could work in

conjunction with the 2070 as communications backhaul only or it could work in place of the 2070 if using the open API to transmit the alarm if that would be acceptable.)

Answer: No.

79. The Studemont system utilizes WiMax communications for backhaul. This system is going away. Will we be responsible for providing the data backhaul? If so does it have to be the new cellular based system the City is planning on implementing or would it be possible to utilize the AT cellular network as we intend on using for the School Zone project? (As stated above this could be in place of the 2070 in question 3 or could be used in conjunction with a 2070 – either could be made to work)

Answer: No. City will provide Aircar.

80. The sensors at Studemont and Lorraine are installed in a stilling well. Will a stilling well be required at all locations? (The stilling well will prevent the level sensor beam by being accidentally broken by an animal or other foreign object that could cause a false measurement and potential activation of the beacons resulting in accidental intersection signal preemption) **Answer: This will be determined on a case by case basis.**

81. The sensor at Studemont is a Radar Level Sensor by Endress Hauser provided by the City. Paradigm has since realized that this sensor is good when constantly over water, but it has issues if the well goes dry and the bottom of the well has a low coefficient of reflectivity. (Both Grass and Asphalt have a low coefficient of reflectivity and can cause the sensor to lose its reading.) Do you want to continue to use the Radar Level Sensor (less expensive) or do want to go with the slightly more expensive Ultra Sonic Level Sensor that does not have these issues? (The ultrasonic sensor does not have the Bluetooth programming capability of the Radar Level Sensor but can work in any condition. The Radar Level Sensor would need to have something installed at the bottom of the stilling well like a sign blank for the beam to reflect off it will be utilized?) **Answer: Proposer is to determine best solution.**

82. How long will the BBU's be required to keep operation going? (is the propane generator the primary back up method with the BBU only coming on as the generator comes online or is the BBU required to keep the system functioning for a long period of time?) **Answer: This has been addressed in the ConOps and will be considered on a case by case basis if distance to the advanced flashers becomes an issue. Runtime for BBUs should be indefinite.**

83. The plans call for 40 DMS signs. Is that quantity correct? (I would think it would be more than one per location.) Do you have the specifications on the DMS Signs? **Answer: This should be 80 minimum.**

84. How many Red Beacons will be required per location? How many Yellow Beacons? **Answer: To be determined with the design of each location.**

85. Can you describe the desired TxDOT interface and what functions you would like for it to perform? **Answer: TxDOT does not have a separate desire than the City or the County. Interface must be within the project scope of work. The final data interface must be available to the public through Harris County Flood Control website as well as City desired sites and the Houston TranStar map.**

86. My first question would be how do you want to communicate the processed signal (Turn on Beacons) from the main cabinet to the flashing beacons? Do you want to use point to point radios like at Studemont or hard wire via conduit in the ground like at Lorraine or are you open to other solutions such as cellular based communications lieu of the point to point radios? **Answer: The City will provide air cards.**
87. The master control station is stated to be a modified traffic signal cabinet. (At Studemont and Lorraine a City of Houston Spec. 346 was partially stripped down) This project will also involve Harris County and TxDOT. I do not believe that Harris County has a 346 Specification. (Probably not a big issue as they could adopt COH specs) The real issue would be that TxDOT does not have any familiarity with the 33X style cabinets at all. Would a 12-position base mount cabinet be required at TxDOT sites or would it be possible to utilize something more like a School Zone Flasher Cabinet. **Answer: Proposer to make recommendation to the City and TxDOT on the best resolution for the cabinet issue.**
88. A 2070 is utilized at both Studemont and Lorraine to allow an alarm to be generated on the City's ATMS.Now platform. Will you be requiring a 2070 as the method of alarm transmission or would it be possible to have input come via an open API source? (We are considering using the Glance System Management Software that would control communications and allow for the status of the flood beacons to be added to the Travel Safely phone application for ease of communication to the travelling public. This is same driver alert system that we are proposing to utilize on the School Zone Flasher project. The Glance software platform could work in conjunction with the 2070 as communications backhaul only or it could work in place of the 2070 if using the open API to transmit the alarm if that would be acceptable.) **Answer: The Proposer shall recommend the best solution available to meet project scoping requirements.**
89. The Studemont system utilizes WiMAX communications for backhaul. This system is going away. Will we be responsible for providing the data backhaul. If so, does it have to be the cellular based system the City is planning on implementing or would it be possible to utilize the 4G cellular network as we intend on using for the School Zone Flasher project? (as stated above, this could be in place of the 2070 in the previous question or could be used in conjunction with a 2070 – either could be made to work. **Answer: City will be providing air cards.**
90. The sensors at Studemont and Lorraine are installed in stilling well. Will a stilling well be required at all locations? (The stilling well will prevent the level sensor beam by being accidentally broken by an animal or other foreign object that could cause a false measurement and potential activation of the beacons resulting in accidental intersection signal pre-emption?) **Answer: Proposer to make recommendation on handling the situation.**
91. The sensor at Studemont is a Radar Level Sensor by Endress Hauser provided by the City. Paradigm has since realized that this sensor is good when constantly over water but has issues if the well goes dry and the bottom of the well has a low coefficient of reflectivity. (Both grass and asphalt have a low coefficient of reflectivity and can cause the sensor to lose it's reading.) Do you want to continue to use the

Radar Level Sensor (less expensive) or do you want to go with the slightly more expensive Ultra Sonic Level Sensor that does not have these issues? (The ultrasonic sensor does not have the Bluetooth programming capability of the Radar Level Sensor but can work in any condition. The Radar Level Sensor would need to have something installed at the bottom of the stilling well like a sign blank for the beam to reflect off it.) **Answer: Proposer to provide the best option for addressing the problem.**

92. How long will the BBU's be required to keep operation going? (Is the propane generator the primary backup method with the BGU only coming on as the generator comes online or is the BBU required to keep the system functioning for a long period of time?) **Answer: BBUs are to run indefinitely. At locations with pump stations and BGUs, BBUs will only be required at advance flashers if they are too far from pump station to run to. BGUs will run all equipment unless distance prohibits it.**
93. The plans call for 40 DMS signs. Is that quantity correct? (I would think it would be more than one per location.) Do you have the specifications on the DMS signs? **Answer: The DMS number is a minimum of 80 DMS signs. Most locations require to signs per location, but some located along depressed frontage roads may require more than 2.**
94. How many red beacons will be required per location? How many yellow beacons? **Answer: It is the Proposers responsibility to determine the number of red beacons and yellow beacons based upon the design for each location. Typical design would include advance flashers on project roadway (two if the roadway is a divided roadway) and one mast arm with red beacons at the critical decision point on the roadway in each direction. Advance flashers on adjacent streets should be determined during design.**
95. Can you describe the desired TxDOT interface and what functions you would like for it to perform. **Answer: TxDOT does not have a separate desire than the City or the County. Interface must be within the project scope of work. The final data interface must be available to the public through Harris County Flood Control website as well as City desired sites and the Houston TranStar map.**