Attendees: Tom, Brian, Chad, Brad, Jim, Shawn, Bill, David, Lee  
  
Generally four lane projects will have culvert work - expanding a highway or building new four lane. Survey collects information - hands off to design who develops cross sections - they leverage the 3D survey information coming into the hydraulics team.  
  
Hydraulics looks at cross section information and survey data to develop flow lines and lengths - schedule sheet managed in an excel file.  
  
Survey develops a pink sheet - locates of existing culverts, or locations of a draw where water is already moving to provide proposed areas for building culverts - hard copy pick sheets that documents flow lines.  
  
This can impact the grade height to accommodate the required size of the culverts - develops a tab that gives a length, size, flow line for culverts - then does the handoff to the design - details go in the tabs  
  
STR file (2D file) - MicroStation that shows orientation and length, also cross sections with size - cross sections do go in the plans but may be designed by Design (usually for extensions) if not will be provided by the hydraulics team  
  
An access database was developed at one time to use to populate the pink sheet information on a project by project basis (not a master database). Still issues with Survey not filling out the information in the access database now. Hydraulics team could be using this as well but appears to not be.  
  
Hydraulics team is interested in revisiting the access database process. The database creates the hydraulics schedule and the tabs for design. Survey has to be filling things out too. Survey is supposed to put in flow line information and additional information from the as-builts but currently this may not be happening.  
  
Identify points of data input for the access database related to this. During construction there is survey being done as the feature is being installed? Most of the elbows being installed are precast and the same size every time.  
  
OLE and Maintenance share a LiDAR handheld data collection wand that could be used under ground to collected culvert information in larger pipes.  
  
Survey collects data for what is currently in the ground, but need to think through how we manage data, what data needs to be maintained despite features being retired. Database should start with prelim bridge for pipes being extended or newly installed. Not for pipes being plugged and abandoned. Currently not collecting Lat long for features in the pink sheet - leveraging COGO data should be a next step   
  
SUE - sub surface utility - add on for MicroStation like Geopack - underground 3D design  
  
The goal is to get away from the "plan sheet" mentality and get to a place where survey starts loading the database, then hydraulics adds to the database, and then it goes to design. During construction if anything is changed they make adjustments.  
  
They do survey to monitor the flow lines to make sure the pipe is installed correctly, and field adjustments are made fairly often for flow line and occasionally length. Prelims survey ages out and the can channels shift before the culverts get installed. Will generally only extend if there is a major shift in flow line. RCE currently keeps the construction survey data. Construction needs to be able to change the graphic to accommodates for these changes?? Need to note the change in elevation however if the culvert gets moved more than a few feet the graphic should need to be moved.  
  
How to get survey information collected in the field during construction back into the database?  
  
Construction is collecting the flow lines, inlets and outlets but not the bends in the pipe.  
Construction could be collecting the drop downs as well - could add a bid item to keep the pipe uncovered so survey could get shots on things we need (culverts with bends in them or that moved)  
  
Construction needs to be able to edit and update data in the field. They also want to be able to tie their bid items to the features.  
  
Need to know where storm sewers are dropping into the system to be able to accommodate utilities   
  
Need a way to manage this information in a digital format throughout the process as there are a lot of places where manual data error could happen.  
  
Need to be able to handle nodes (elbows, manholes-top/bottom elevations) and links (segments of pipe, etc). Leverage to generate cross sections for the plans or the storm sewer development.