

GIS-CAD Interoperability Round Table Discussion

These are notes collected during the round table discussion and parsed out in two formats.

- 2 products
- 2 uses
- 2 extents of coverage

Standards

- People use the tools they need to do their jobs
- How do we keep the standard?
 - Lowest common denominator
 - Software is not the only solution

GIS Shares

- Design doesn't?
- One way fit?

Open Formats

- Available, but use is not there
- Conversion is the main issue

Interoperability vs. Interpretation

- Interoperability
 - Real time
 - Is this the goal?
- Contractor/Vendors
 - Have solved the issues
 - Have DOT's missed the message?

FHWA Support

- Peer exchanges
- Research
- Guidance
- Standards
 - Trans SML
 - Already a standard

GIS to Design Enviro and Inverse

- Drag and Drop functionality
- Both user group accept information
 - Cultural issue?
- Identify ROI

Long Term Transaction Management

- Workflow, Accountability, Manuals, Policy
 - How can this be used to change culture?

Work with standard comm

- OGC

Future

- GIS-T workshop
- FHWA sponsored peer exchange
- Work with vendors
- Build coalitions

Roll Call Roundtable Dialog Notes 4/17/2012 – GIS / CADD Interoperability:

Will Johnson – Colorado DOT – opened the session with some basic ground rules, a series of focus questions on a slide, and overall purpose of the Roll Call Roundtable discussion.

Teague – Georgia DOT – want seamless integration without a lot of ETL. Want drag and drop – some tools exist but not totally elegant.

Will Johnson – Colorado DOT – DGN is not built on a relational database. GIS can be used for more than just “picture”.

Will Holmes – Kentucky DOT – said divide is somewhat cultural between CADD and GIS professions.

Bentley and GIS – feed much data from CADD into GIS which helps workers use data better but CADD side doesn’t always forward updated information back efficiently.

Working with lots of data feed CADD from GIS using web map services (WMS).

Van – Tennessee DOT – some open formats for multiple vendors on both sides of industry but not being fully leveraged / integrated.

Difference between interoperability and integration aspects.

Drew Rifkin – FME – People often don’t understand how the 2 paradigms exist / operate from either side.

Comes down to standards and then the knowns help with knowing data whether GIS or CADD are representing.

GIS can have additional fields that can help with recognition / transition between CADD to GIS and/or back.

David – Autodesk – Coordinate system and projections from GIS can be challenging for CADD products.

Need lowest common coordinate systems for The GIS / CADD interaction.

Feature Data Objects can help bring data from clients of various vendors.

Will Holmes – stated don't want another piece of technology to help the exchange.

Land XML needs coordinate system and projection information.

Vendors should work to address standardizing Land XML format.

Tom Clemons – Bentley – and Terry Bills – ESRI – discussed that there has been a technology issue between vendor solutions of GIS and CADD but seems like more of a cultural issue in recent times.

Acknowledges customers want real time access / use of GIS and CADD data. Real time access takes trust between GIS and CADD communities.

Van – Tennessee DOT – real time data would be good but has to have version identity and control in order to have knowledge of specific data being accessed / used.

Tom Clemons – Bentley – Bentley and ESRI worked several years ago on an interoperability solution to create a real time use but for various reasons the relationship and initiative fell to the wayside.

Tom believes that with FME that same capability as coordinated before is feasible.

Terry and Tom suggested that GIS-T host a workshop involving several vendors to look at example data (from attendees possibly) to cover workflows and best practices. Could also have DOTs who have put together solutions present as well.

Teague Buchanan – Georgia DOT – Challenge is the length of project life cycles and maintaining compatibility for that cycle as well as version control.

Teague echoed Van's statements about common (open) format and version identity / control.

Believes common (open) formats are the best approach.

Van stated that what the DOTs don't need are too many products to handle the translation and/or transactions.

James Brown – Intergraph asked question "What do we want to do with the data? This question is the basis for implementing the right solution.

Terry Bills – ESRI – mentioned that looking at standards and workflows is probably a good approach.

Graphic Representation between GIS and CADD is challenge since often standards on CADD side are more consistent than cartographic standards on the GIS side.

Help with this would come closer to “maps” reflect more common or closer representations for features.

Will Holmes – KY DOT – importance of having fewer “clicks” to get information from one GIS or CADD feature into the others’ product / environment.

Standards are good but how do you get people to follow them?

South Dakota DOT – can’t go back to change policy of telling CADD and GIS to integrate. States have challenge of cultural change leading to process / workflow change.

***Will Johnson – Colorado DOT – believes it is better to control with workflows and adaptation on both CADD and GIS sides.

***CADD data from licensed surveyors and professional engineers have to be assured of continued integrity.

***Will Holmes – KY DOT – During Design and Planning phases of project life cycle are when CADD / GIS integration are needed and not only when the design is close to completed and/or in “signed” official form.

Seeing the “change” that is occurring in designs so can check against GIS data all along the life cycle of the project is relevant.

Van – TN DOT – This business is all about the project life cycle and data evolution throughout the life cycle.

***Teague Buchanan – Georgia DOT – Georgia leaders realized that not easy or direct on how to put hands on correct project data when someone asks. – This has led to adoption of policies and workflows at Georgia.

***Tom Clemons – Bentley – Recent legislation issued for technology and better data integration and tracking dictates the use of collaborative technology to be used in our industries to improve.

Tom cited Senate Bill 1813 and House Bill 7 as recent legislation for attendees to review and be vocal about in the industry.

***Engineering designs with precise geometry so have to use geo-space that preserves that accuracy and precision.

If use in GIS then can’t “change/warp” that data by reprojecting to maintain full data integrity from an engineering design perspective.

Terry Bills – ESRI – He acknowledged that we’re all losing money by not resolving these issues so reiterated that should move forward with a GIS-T workshop to look at technical capabilities then after can hopefully identify what other cultural or policy issues exist in the DOTs.

***Mark Sarmiento – FHWA – Mark suggested possible federal effort or set up of a peer review exchange to see where best practices and successful implementations are going on in part or whole.

***Tom Clemons – Bentley – Tom mentioned a trend in TN to outsource the work so even with standards internal staff may not be able to check those deliverables to confirm the standards are met.

Bentley had some CADD checker tool they developed for Britain’s data reviews so when data was received from external sources could see if standards were met.

Tom said that ProjectWise helps maintain full version transaction profiles for project drawings.

Will Johnson – Colorado DOT – asked if there was/is interest in a coalition to look at standards? – Several participants gave affirmative acknowledgement.

Trans XML was mentioned as effort that took look at standards and may be source to resurrect and work into a current standard. (AASHTO funded?)

Will Holmes – KY DOT – Will challenged the vendors to embrace some of the standards as output or transformation formats as part of core product capabilities to facilitate shared usage of data. “Make it all easy” or “Just happen behind the scenes in software” to minimize changes to user workflows.

Recommendation at end to work more closely with OGC to help address standards that vendors can embrace.

Someone mentioned they have not seen members from the transportation industry participating on any of these OGC standards committees.

Suggestion was that Mark Sarmiento or FHWA representative engage and participate.

GeoDecisions – Stated need to come up with an approach on how to start tackling some of these issues.

Van offered idea to also follow the technical workshop idea suggested with an afternoon focus group to discuss strategy and approach to these problems between the GIS and CADD communities and within the context of the DOTs. This would help develop some information the DOTs may be able to take back to their states as actionable items to prioritize and implement.