GISDC Meeting in Ohio March 29th and 30th 2006
Meeting Notes
April 17, 2006

Attendees:
Chris Hughes, IT IS Nevada Dept. of Transportation (DOT) Consultant; Steve Brown, Nebraska Dept. of Roads (NDOR); Kim McDonough, Tennessee DOT (TDOT); Mike Engleman, U of Oregon; Milt Hill, Oregon DOT (ODOT); Chuck Reider, Nevada DOT; Roger Ewers – California Dept. of Transportation (CalTrans); Jerry Dildime: Consultant with Nevada DOT; Michael Leierer, Washington State DOT (WSDOT) ; Tami Griffin, WSDOT.

Note: Because of the difficulty of organizing the GIS-T conference, the Ohio Department of Transportation was unable to attend the meeting.

Expectations:
- Basic Architecture,
  - Generic architecture to adapt to locals and states needs,
  - Integration model will filter up from the locals needs,
  - Common Geometry over multiple uses,
    - Do we really need a common geometry?
  - Have common First Order Points, but maintain multiple second order points,
  - Common Framework,
  - Support of multiple geometries for any segment,
  - Some level of platform independence
- Standards based data, easily consumable by users,
- Sustainable implementation,
- Working Data Model,
- Maintain a relationship with the Federal Geographic Data Committee (FGDC),
- How do we make it worthwhile for locals to provide data to us? Key may be to tie it to money.
- KISS (Keep it simple),
- Use Case scenarios and user derived requirements,
- Maintain relationship with Census,
- Increased emphasis on marketing.

Communication:
- Publish Lessons-Learned from the Puget Sound Pilot,
- Publish Lessons-Learned from Oregon Transportation Framework Project (OR-Tran),
- Schedule regular interim meetings which can take the form of:
  - Conference Calls,
  - Web Meetings (Webex, NetMeeting),
  - Video Conferencing.
- Create a SharePoint Team Site which will include:
  - Document Libraries and Catalogs, which provide the ability to provide remarks/input and editing,
  - Discussion topics,
  - Options for participation in Pilots and GISDC activities,
  - Scheduled meetings and events.
- Action Items and scheduled deadlines,

- Be a part of GIS-T (participation by presentations).
- Get on the GIS-T agenda as a special interest group (SIG),
- Participate in URISA conferences (Note: will be presenting in Vancouver, B.C.),
- Present at the ESRI conference.

Tami's presentation:
Tami gave a PowerPoint presentation to the group about WA-Trans, the basic architecture, the database and the two pilots (A .PDF version of the GISDC presentation can be accessed from the WA-Trans Web site)

There was concern that we do this Open GIS Consortium (OGC) and make sure that what is produced can be used by all participants. There was concern that our staging database not be "closed" source. It was noticed that in the database design the possibility for the name of the road to change mid-segment may not be addressed in the description tables.

University of Oregon:
Mike Engelmann described the role the university has played in the Oregon effort (Oregon Transportation Framework, OR-Trans). They have helped collect and format line and address data from counties who do not have data or have very poor data. This involved conflation and integration processes. They are also doing work with CAD and GIS for the state. Their involvement included being involved in the formulation of standards. The discussion helped give an insight into what is possible when using universities in any efforts by the states.

Summary of what participating states are doing:

Tennessee: Has a state GIS Office but is independent from the TDOT. Statewide base mapping program relies on Tele Atlas to be used for e-911. TDOT has access to that data and has common LRS. All data is referenced to that. Utilization of a common geometry across multiple uses. Locals are using addresses and TDOT is log mile LRS. Would like to have features identified by a single entry to the GIS with multiple attributes.

CalTrans: Trying to get a statewide parcel layer. There is a continuum of data availability across counties. California has made recent investments in Micro Station and Google Earth. There is an effort to create a California One Map in collaboration between CalTrans and Tele Atlas North America (TANA). Roger Ewers was complimented on the presentation he gave, at the GIS-T, about the California One Map. California One Map looks like an effort that will produce great results for California.

Oregon: Have completed gathering data from 34 of 36 counties. Some data was from local government, some developed by U of O and some by BLM. Along state highways local data we had to snap intersections along state highway and then snap it to the highway and then break it there. ODOT has a duplicate feature there and they could treat the other intersections as events along the highway so where the highway passed through the municipality for addresses. This is FGDC compliant. There is some difficulty getting data sharing agreements to sign. State Geospatial Enterprise office has co-opted the ODOT process and added to their role (addressing). Goal was to

give the layer to Census. Irony is that is biting us now that we are trying to gear up to Census 2010. They sent us a target date of 2005. This can't be done in forested areas because it doesn't meet the need.

Washington: Washington is leading the WA-Trans efforts for the Puget Sound Pilot and the Transportation Pooled Fund study. WA-Trans is researching and implementing a statewide integrated transportation data source. This data source will be regularly maintained and available for use by the public, other states and other agencies. The translation process, which is a major component of the WA-Trans Puget Sound Pilot, is also being applied to the translation of WSDOT CAD drawings into shape files and into a database. The goal is to have all CAD drawings depicted in GIS. WSDOT has a GIS Workbench, which provides GIS data for analysis and mapping to WSDOT users and is being constantly upgraded to include more GIS data. There are efforts to standardize HPMS, Roadside Inventory and create a new LRS for WSDOT that fundamentally follows the WA-Trans Framework and expects to leverage the WA-Trans transportation data for the foundation underlying their data.

Summary of participating States Architecture:

The architectures provide a window on directions necessary for the development of software tools. The goal being to create tools, which can be used on the systems of all partners.

Oregon: Uses Geomedia geospatial software at the state level. Geomedia warehouse for T-FIT (Geomedia's answer to SDE). Stores geometry in proprietary binary format etc. Other users of OR-Trans mixed Geomedia and ESRI. MS-SQL Server is the database used. For editing you want Geomedia environment. U of O edits CAD data, transforming into GIS. Does that mean you will quit using CAD? Used Microstation to produce the city/county series of maps. Oregon has an ITIS (Integrated Transportation Information System) - SQL Database. Has contracts information. Both LRS are mile point based. Don't know the source of the LRS.

California: SW ESRI shop. ArcGIS 9.1. Legacy library shape file based. Moving towards Oracle Spatial through ArcSDE (at least initially). Just bought Microstation workstations. Also working on facilitating CAD GIS and identified issues and developed a charter. At the end of the day 75% of the issues are data related so they became a geospatial data committee. Looking for high level sponsorship. Purchasing Google Earth Pro ($800 for each workstation) and looking at a purchase of Google Earth Enterprise (1 time purchase $140,000 + 25% maintenance) Use with NAIP and other internal data. Big demand by users and they are paying for it.

4 Sun 289 R Unix data servers. 2 are developers (1 for ap. 1 data) and test server and production server. Designated production server will be Oracle Spatial. Second generation LRS will be Oracle Spatial. CA is moving to Telesales for local data. All internal data in the dept. is siloed and reference in post-miles over the years (very few understand post-miles). LRS - parser and data validator (compared them to the "bible" for post-miles and they must validate there). Integrated with Google Maps. See this as the tool to drive data integration in the Dept. Strategy is to have data remain with sources and stewards and have the ability to get to that data. Traditional editing, post-mile validator. Keeping data with the data source.

Nebraska: Similar to TN and OR. Geomedia shop with legacy MGE. Highway inventory is on a mainframe and LRS is a PC application. Some ESRI in few sections for working with the rest of the world. Not Oracle. Used to be a DB2 shop, now MS-SQL Server. Geomedia and Geomedia Web. Servers are Dell or mainframe. In the process of developing a statewide transportation integrated framework. Up until the person left they were pushing statewide centerline and addresses for the entire state. Most of those are small and don't have as much accident data. Building strategy as we speak. Issues that we discussed in this meeting are very good for us. What is the strategy for updating and maintenance?

NB uses Microstation for maps. Cartographers don't trust GIS and don't like it. Slowly working this with them. No ESRI at all. Use Geomedia warehouse. Want to provide a service that spatially oriented data can hang itself on.

Washington: Is an ESRI shop using ArcGIS 9.1 accessing data from shape files, and MS SQL 2002 database. Data is stored on various servers compatible with Microsoft software. This architecture is proposed for WA-Trans, but fits with existing production implementations at WSDOT. ArcIMS is used for Web access of geospatial data. WSDOT has created a GIS Workbench, which provides data to WSDOT users for analysis and use in creating custom mapping. NOTE: A basic architecture diagram can be viewed on the SharePoint site. This document is co-located with these notes.

Tennessee: Uses Geomedia and ArcGIS 9.1. Also have Geomedia Map. The database is Oracle Spatial (Oracle 9i and 10g). Production servers are HP Proliant DL380's and DL580's. Road inventory is maintained in the Tennessee Roadway Information Management System (TRIMS). The road data can be accessed by either a client based application or a web based application. TDOT has begun a project to migrate from MGE/Microstation to a comprehensive GIS/Oracle Spatial environment. Tennessee provided a detailed document with their architecture, which is only summarized in this paragraph.

Translator in the Puget Sound Pilot:

There was a demonstration of a translation process, using FME, a shape file and an ESRI personal database (Access mdb). The demonstrated translation is very preliminary and is more a proof of concept. Full translations will need to be built by the Puget Sound Pilot data providers. The following proposed steps are to enable a translation by data providers during the WA-Trans Puget Sound Pilot. *NOTE: Requirements for the interface to this process have not been acquired yet. To obtain these requirements will involve Use Case scenarios and user based detail requirements.*

The following steps are the steps covered in the demonstration. This is not intended for you to use, but to give participants a view of what the translation process for the WA-Trans Puget Sound Pilot is. The links provided will allow download of some of these documents.

1.) Familiarize yourself with the WA-Trans data Standards and Data Model.

2.) Fill out the WA-Trans Crosswalk Spreadsheet (Crosswalk spreadsheets can be viewed on the One Road SharePoint team Site).

3.) Download the WA-Trans personal database from the SharePoint site. (We will create a personal database with as few entities and attributes as possible)

4.) Download and complete the WA-Trans Translator Tutorial. A tutorial was discussed, but no copies were handed out. The tutorial is available on the One Road SharePoint Team site (Translation Tutorial - Draft.doc). If you are interested in doing the tutorial let me know.

5.) Create and test a translator using the provider's data.

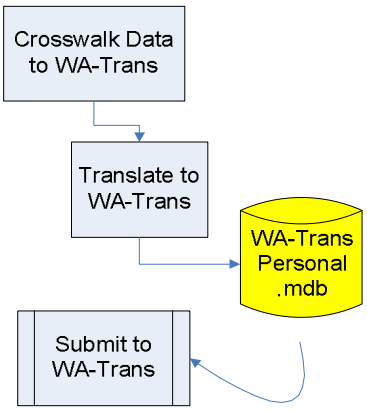
6.) Translate your data into the WA-Trans personal database.

7.) Fill out the WA-Trans submittal form and upload to the SharePoint Site when translation is completed.

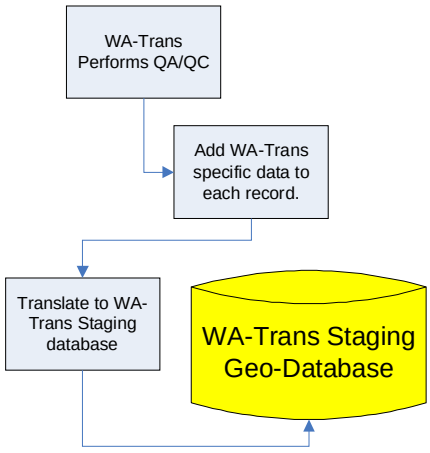
8.) Upload the personal database with the translated data to SharePoint. Remember to apply your organization name as the name of the database.

9.) Upload the XML Metadata file related to your data, prior to translation, to the SharePoint site naming it with your organization name.

Steps 2 - 9



After the providers data is in the WA-Trans administrator's possession as an ESRI personal Geo-database there will be a further translation to place the data into the WA-Trans Staging database (an ESRI SDE MS SQL database)



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One Road Charter:

The intent of the One Road Charter is to meet WSDOT Office of Information Technology (OIT) project requirements for the One Road Pilot. The document includes defined processes, roles and responsibilities, risk management and communication processes, expectations and scoping. This document also lays out the development process and aligns roles and responsibilities to it. Not much time was spent on the charter although any feedback would be much appreciated. The One Road Charter (Draft) can be found on the One Road SharePoint Team site.

Data User Interface Business Requirements:

Nebraska and Tennessee are not as concerned with the data user requirements and really feel those will be custom for every state based on laws. So their feel is we need to focus on a data provider portal first. We have to check with other participants to be sure of this.

Various items discussed:

Geometric Representation from WA-Trans. The WA-Trans data model was reviewed in some detail. WA-Trans has first order points to represent intersection and segment breaks. It also uses second order points to represent intersections with private roads and other modes that may or may not be broken into segments. Store first order points but traversed route is longer (due to switchbacks) but we must store measure of traversed route. The geometry must be an attribute of the segment. You can have multiple geometric representations. If you have a generalized representation of a segment, but from a linear referencing standpoint you have to be able to produce them on all the geometric representations. Make sure your first order points register they can move those second order points where they want. There could be a third or 4rth order node. This allows some flexibility.

Steve –considering how getting county data in. If we wrote our own geocoder that would test data structures, etc. He also recommended some shareware to look at for re-projections rather then using proprietary software. Look at DLG32 for re-projection. There is A C-based projection engine freely available.

Steve - For crash data you linear reference it why don't you linear reference it and geo-code it.
I am looking at a data model to give to your “cow” counties to get them started. Selectability of data provided. Goal - Implementations by major software vendors. We want to develop things we can get vendors interested in.

Roger - Use web services. Roger wants to get a handle on who our users are. It may be different for different states.

Kim recommends looking at Wisconsin.

Mike – Oregon is having difficulty getting data sharing agreements signed. They also have problems with resource roads. No maintenance on roads. Dept. of Forestry still wants them in their data set.

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Questions:

1. What do you pull in from the shape file as the geometry and based on that how are you going to represent multiple geometries? It appears to be attached to the segment which means it only allows for one geometry, for each segment. We may need to make our model a one to many for geometry to segment to allow multiple geometries.
2. How do the ramp identifiers fit into the database?
3. What are the implications of making LRS onto a route versus a segment?
4. What are the implications of separating our addresses from the segment allowing for address points?
5. Why not just point to the data rather than replicate it? (Roger)
6. Why not just have the tools that allow neighboring folks to utilize their neighbor's data? (Roger)

Action Items:

1. Schedule next GISDC Advisory Meeting (Maybe meeting pre-conference instead of training) for the next GIS-T in Tennessee. (Tami and Michael with Kim, speak with Diane Piersinsky)
2. Schedule a series of meetings, which can be by conference call or web communication tool. (Michael and Tami)
3. Create One Road SharePoint Team site. (Michael)
4. Place documents from the GISDC Meeting and any supporting documents to the One Road SharePoint site. (Michael)
5. Send TPF information to interested states. (All participants need to spread the word!)
6. Become a SIG for the next GIS-T conference (Tami and Michael speak with Diane).
7. Present at the next GIS-T (Leverage Tennessee for this (Tami and Michael) start marketing this. Work with Diane on how we do this.)
8. Steve will send the GISDC Advisory Team the link for a C-based projection engine.
9. Present at the AASHTO IS conference. Find out who makes that report. A GIS person is on the agenda. (Steve has access to information about this).
10. Big initiative related to The National Map, etc. Kim is willing to present in our stead at URISA (but it looks like Tami will do this if we get on the agenda).
11. Tennessee might be able to do a parallel effort if that would help.
12. Intergraph conference. U of O may go.
13. Tennessee - Paper provided by Kim.