

An Introduction to the Advanced Vehicle Testing Activity's Geographic Information System

Sera White – Database Engineer/GIS Analyst

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Presentation Outline

1. **GIS System Architecture**
2. **Data Creation & Processing**
3. **Map Production**
4. **Time Animations**
5. **Heat Map Generation**
6. **Internet Mapping Applications**

GIS System Architecture

GIS Toolset

ESRI Products – 10.1

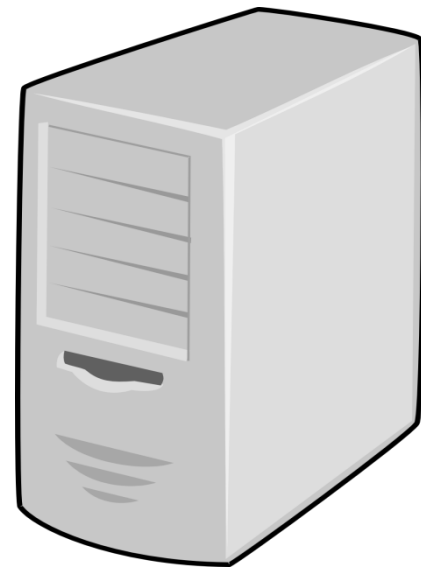
ArcMap
ArcReader
ArcServer
ArcScene
ArcGlobe
ModelBuilder
Python

Adobe Flex – Web Dev
TerraGo PDF – Geo PDF
Creation



GIS Database Server

Windows Server 2008
SQL Server 2008



GIS Web Server

ESRI ArcServer 10.1
Windows Server 2008

Data Creation & Data Processing

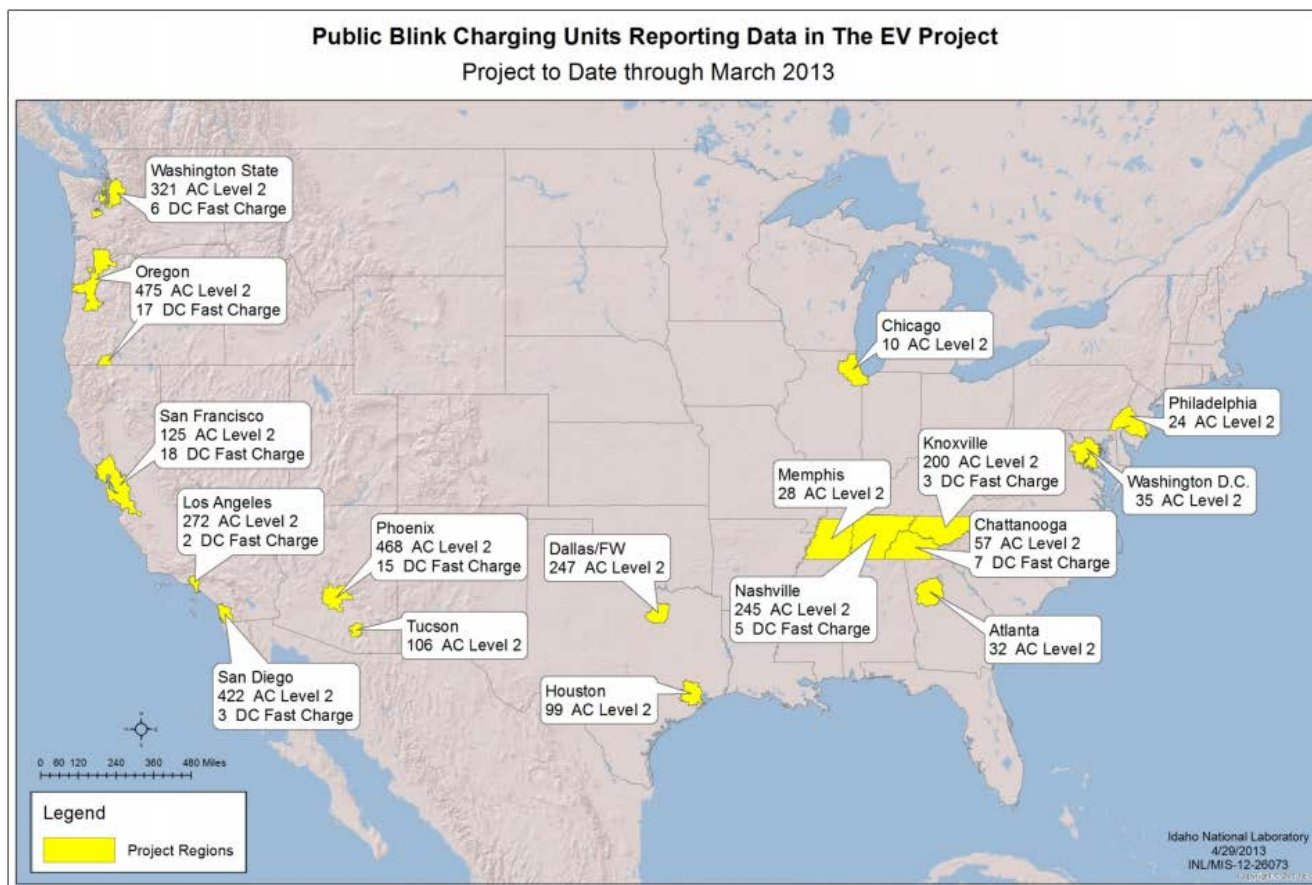
- **Lots & Lots of Data (millions of records)**
- **Geographic computations using SQL Server GEOMETRY data types**
- **Data Creation**
 - **Create geographic data for all data containing geographic components (points and polygons)**
 - **Also create geographic data that is related to the tabular data we collect:**
 - **Such as: Service Territories, EV Project Territories, US States, Interstate Corridors, Urban/Suburban/Industrial Areas, Alternative Fueling Station Locations**

Data Creation & Data Processing

- **Data Processing**
 - **Geographically classify data during database load**
 - **Reduces future processing time**
 - **Intersect with zipcode**
 - **Intersect with project territory**
 - **Intersect service territory**

Map Production (Periodically & as Requested)

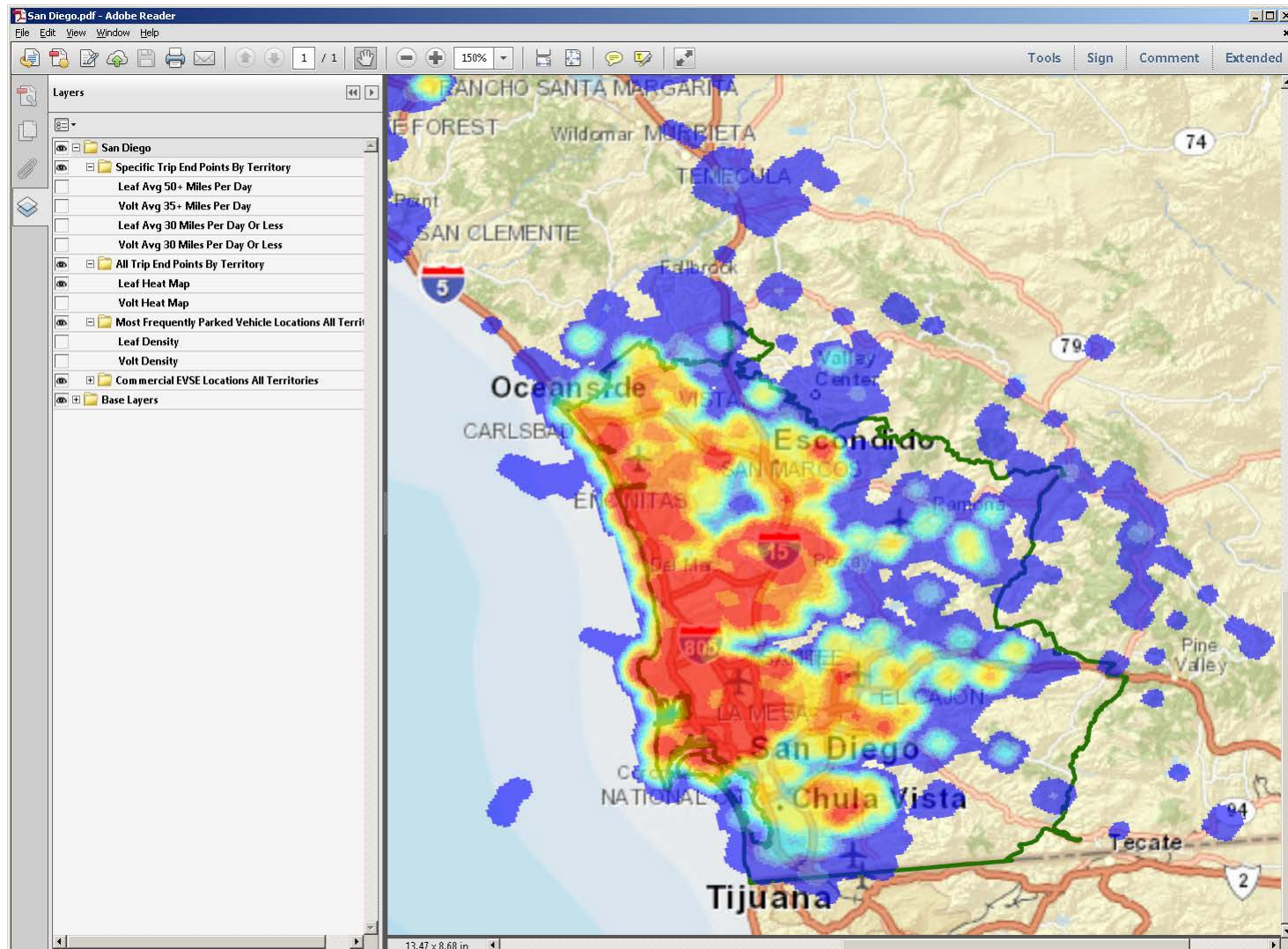
- Map Reports published via our website (<http://avt.inl.gov/evproject.shtml>)



Time Animations



Heat Map Generation



Internet Mapping

The screenshot shows a web browser window with the address bar displaying `simon/TransportationSystemsWeb/FlexApps/AVTMaps/AVTMaps.html`. The browser title is "World Street Map". The map interface includes a toolbar at the top with navigation icons and a map style selector (Topo, Satellite, StreetMap, OpenStreetMap). Below the toolbar are controls for "Show Layer List", "Zoom To Territory", "Query Tool", "Zoom To Lat, Long", and "Map Legend".

A "Layer List" window is open on the left side of the map, showing a list of layers with checkboxes:

- ☐ Coloumb EVSE Info
- ☐ Ecolnra Event Info
- ☐ Ecolnra EVSE Info
- ☐ GM Vehicle Info
- ☐ GM Event Info
- ☐ GM Parking Events
- ☐ Nissan Event Info Key On
- ☐ Nissan Vehicle Info
- ☐ Nissan Parking Events
- ☐ Businesses
- ☐ Shopping Centers
- ☐ Eco Commercial Venue Classifications
- ☐ Eco Commercial EVSE Site Info
- ☐ EVSE Locations Provided to NREL
- ☐ Zipcodes
- ☐ Zipcode Points
- ☐ EV Project Regions

The map displays a topographic view of North America, including Canada, the United States, and Mexico. Major cities and geographical features are labeled, such as Vancouver, Seattle, San Francisco, Los Angeles, Dallas, Houston, Chicago, Detroit, Toronto, Montreal, New York, Philadelphia, Washington, Atlanta, Miami, Havana, Port-au-Prince, Santo Domingo, and Kingstown. The map also shows the Great Lakes, Hudson Bay, and the Gulf of Mexico.

At the bottom of the browser window, a download bar shows a file named `x_p_us_afx.xml.gz` with a download icon and a "Show all downloads..." link.