



FRA's Rail Network Conflation Status

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USDOT

Background

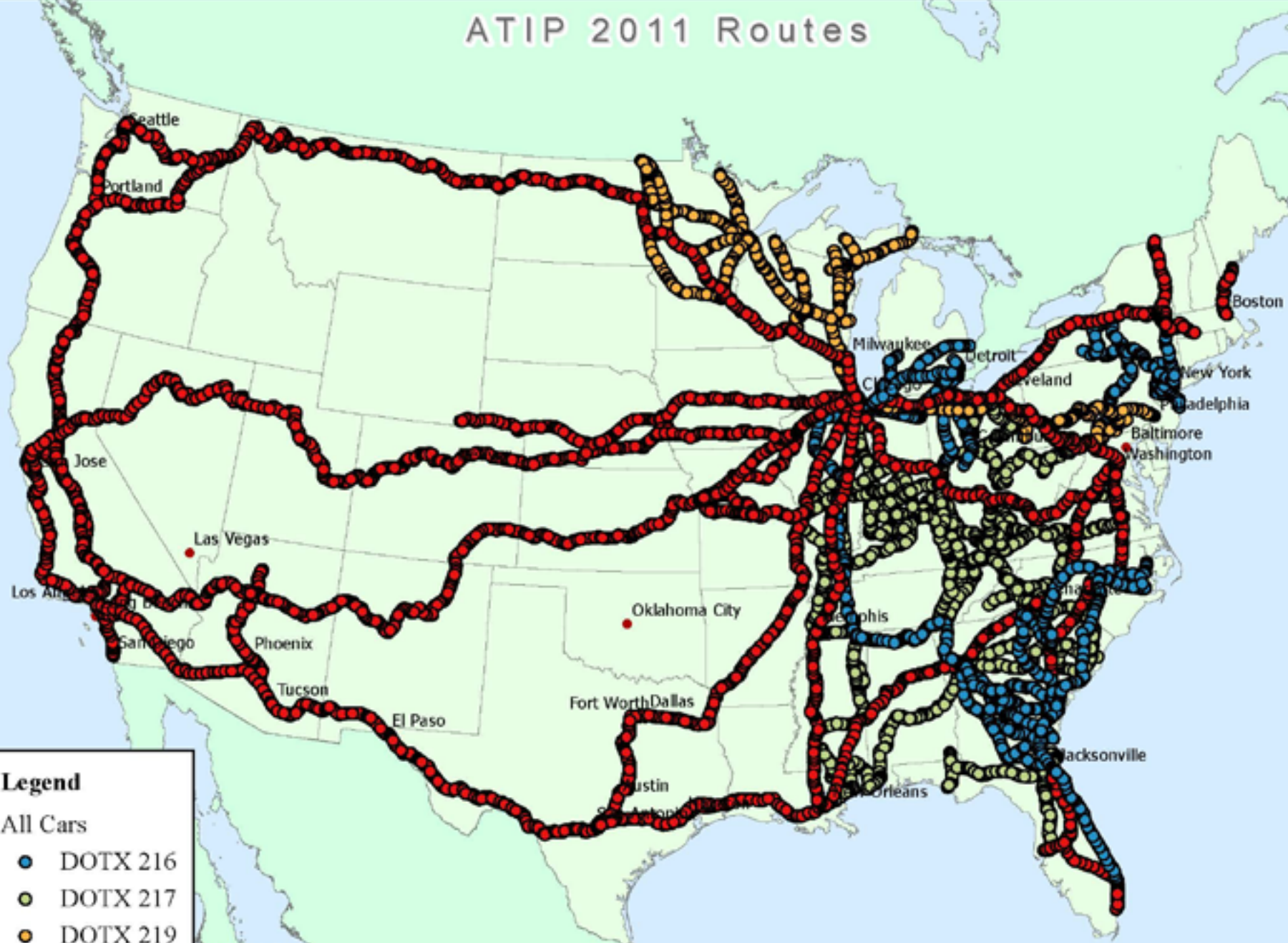
- **DOT/FRA Rail Network**
 - Represents 185,000 miles of mainline track
 - First created in mid 80s from USGS 1:2million DLGs
- **NGA Rail Network**
 - Includes all lines and sidings
 - In general, more accurate
- **Automated Track Inspection Program (ATIP) Data**
 - Collects long-lat every foot to locate track defects
 - 84,100 miles of main line track collected under ATIP

Spatial Improvements

- Integrating the FRA's Automated Track Inspection Program (ATIP) Data
- The ATIP cars take a latitude and longitude reading every foot.



ATIP 2011 Routes



Legend

All Cars

- DOTX 216
- DOTX 217
- DOTX 219
- DOTX 220

USDOT
Federal Railroad Administration
Office of Policy

Legend

- Foot by Foot
- FRA - Before



Legend

- Foot by Foot
- FRA - After



Breaking Down a Stovepipe

- **In June 2014, DOT and NGA met**
 - **Shared information on their respective geospatial data programs**
 - **Recognized the rail duplication of effort and agreed to end it**
 - **Agreed to the rail conflation project, with DOT providing funding**
 - **Agreed to work together in the future to further develop/improve transportation**

RFI & RFP

- **FRA put out a RFI in May 2014**
- **FRA put out a RFP in July 2014**
- **Contract began in October 2014**
- **Planned completion of the North American Rail Network (NARN) September 2015**

Current Status

- **Completed:**
 - **Region 7: CA, NV, UT, and AZ**
 - **Region 2: NY, NH, VT, ME, MA, RI, CT, and NJ**
 - **Region 8: AK, WA, OR, ID, MT, WY, ND, and SD**
 - **Region 5: TX, NM, OK, AR, and LA**
 - **Canada**
- **Finalizing the data dictionary**

Schedule for Completion

FRA GIS Network Production Schedule

ID	Task Name	Start	Finish	Duration	2015								
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Region 1 (Actual: region 7)	1/15/2015	2/27/2015	6w 2d	■								
2	Region 2 (Actual: region 2)	3/2/2015	4/15/2015	6w 3d	■								
3	Region 3 (Actual: region 6)	4/16/2015	5/15/2015	4w 2d	■								
4	Region 4 (Actual: region 5)	5/18/2015	6/15/2015	4w 1d	■								
5	Region 5 (Actual: region 1)	6/16/2015	7/15/2015	4w 2d	■								
6	Region 6 (Actual: region 4)	7/16/2015	8/14/2015	4w 2d	■								
7	Region 7 (Actual: region 8)	3/16/2015	5/1/2015	7w	■								
8	Region 8 (Actual: region 3)	5/4/2015	6/15/2015	6w 1d	■								
9	Region 9 (Actual: region 9)	6/16/2015	7/15/2015	4w 2d	■								
10	Mosaic all regions	8/17/2015	9/15/2015	4w 2d	■								

NGDA – Rail Network

- **Met with NGA 06/14, 10/14, 01/15, and 03/15**
- **1 rail network for the Federal Government that will be the best available for the NGDA**
- **Primary stakeholders:**
 - Railroads
 - Federal Agencies: FRA, FHWA, BTS, NGA, etc.
 - National Emergency Number Association (NENA)
 - Rail Corridor Risk Management System (RCRMS)
 - EPA – Eastern Regional Technical Advisory Committee
 - Academia, i.e. Climate Central
 - Etc.

Classes of Railroads

Class 1 Railroads	Class 2 Railroads	Class 3 Railroads
7 Companies	~ 10 Companies	> 500 Companies

Class 1's make up ~ 70% of freight rail miles

Class 1's: BNSF, CN, CPRS, CSXT, KCS, NS and UP



GIS Rail Committee

- Voted to adopt the NARN as their industry network 04/15/15
- Voted to have FRA as a non-voting member 04/15/15
- Currently developing a MOU between FRA and the Railroads
- Development of a Linear Referencing System (LRS) – Discuss on June 24th by the GIS Rail Committee
- MOU will:
 - To protect the railroads, Support mandates, Provide Use Cases, Scheduling, Processes, etc.

Data Attributes – Nodes

- **FRANODEID**
- **STATEAB**
- **STATEFIPS**
- **CNTYFIPS**
- **STCNTYFIPS**
- **FRAREGION**
- **COUNTRY**

Data Attributes – Lines

- FRAARCIDS
- LINKID (NGA)
- MILES
- STATEAB
- STATEFIPS
- CNTYFIPS
- FRAREGIONS
- RROWNER (1 – 3)
- TRKRGHTS (1 – 9)
- STRACNET
- SIGSYS
- TRACKS
- SUBDIV
- FRFRANODE
- TOFRANODE
- NET
- COUNTRY
- PASSNGR
- YARDS
- DS
- INT_TYPE

Change in NET column

Old

- **M: Main line**
- **O: Non Main Lines**
- **X: Out of service line**
- **A: Abandoned rail line**
- **F: Ferry**

New

- **M: Main line**
- **I: Major industrial lead**
- **O: Other track (minor industrial leads)**
- **X: Out of service line**
- **Z: Transit-only rail line or museum/tourist operation**
- **S: Passing sidings over 4000 feet long**
- **A: Abandoned rail line**
- **R: Abandoned line that has been physically removed**
- **Y: Yard tracks**
- **F: Rail ferry connection**
- **T: Trail on former rail right-of-way**

Routing will be on Main and Industrial lead track

Working from the same Geometry

- FRA Network
- FRAARCID
 - MILES
 - STATEAB
 - STATEFIPS
 - CNTYFIPS
 - STCNTYFIPS
 - FRAREGIONS
 - RROWNER1
 - RROWNER2
 - RROWNER3
 - TRKRGHTS1
 - TRKRGHTS2
 - TRKRGHTS3
 - TRKRGHTS4
 - TRKRGHTS5
 - TRKRGHTS6
 - TRKRGHTS7
 - TRKRGHTS8
 - TRKRGHTS9



- RR Network
- RailroadID
 - FRAARCID
 - STATEAB
 - LINKID
 - RROWNER1
 - SUBDIV
 - TRK_NAME

- NGA Network
- NGALINKID
 - FRAARCID
 - STATE
 - STFIPS
 - CNTYFIPS
 - STCNTYFIPS
 - FRAREGIONS
 - RROWNER1
 - RROWNER2
 - RROWNER3
 - TR1
 - TR2
 - TR3

FRAARCIDs & FRANODEIDs

- **Unique Numbers given to every spatial feature**
- **If a link is split, the FRARCCID is retired and 2 new FRAARCIDs are generated**
- **Internally, a lookup table of all retired FRAARCIDs is maintained**

Memorandum of Understanding (MOU)

- **MOU(s) between FRA's Office of Policy and AAR/RailInc to protect the Railroads proprietary data**
- **Develop SOPs**
- **Scheduling**
- **Use Cases**

Next Steps

- **Shortlines – Holding Companies**
- **Possible MOU between NGA & DOT**
- **Work with the HIFLD Subcommittee to resolve issues and/or workflows**
- **Developing feedback procedures**
 - **Internal Wiki**

Questions, Concerns, Discussions?

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