

The Challenge of Referencing Traffic Data Effectively

NATMEC 2016
Tools for Visualizing Traffic Data

Referencing Basics

What we want in a referencing process:

- Simple – can be maintained with a minimum of time and effort
- Related – able to associate traffic data with other data
- Connected – the people who need the data can get to it

A much better process with these attributes!

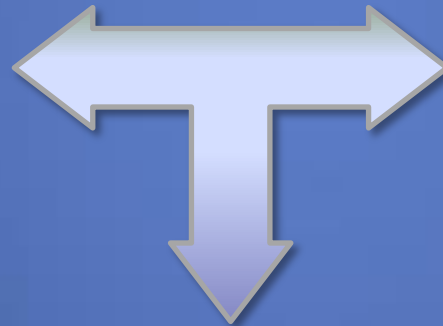
Referencing Basics

The resources we use are:

Production Databases
Raw Data, Factors, Statistics



Reference Geodatabase
Linear Referencing System (LRS)



Publishing Databases
Maps and Tabular



Referencing Basics

Our referencing resources are:

- Production – Mix of in-house applications and databases
- Reference – ESRI Roads & Highways for LRS management (in progress)
- Publishing – Maps using ArcGIS Online (AGOL) and LRS event tables

LRS development is nearing completion

Referencing Basics

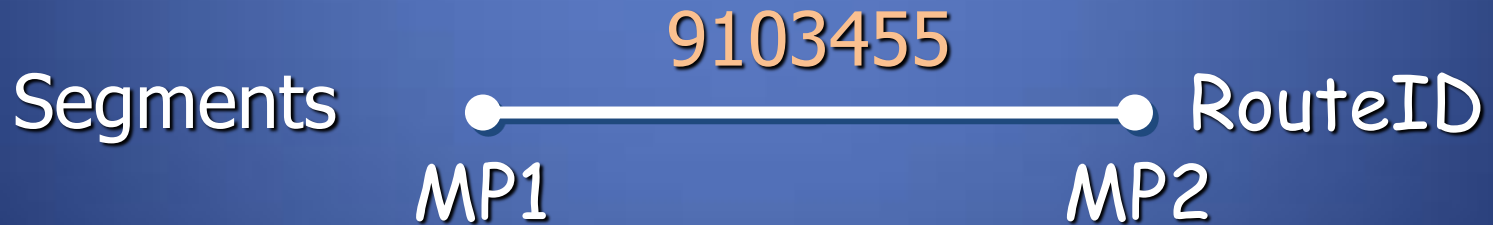
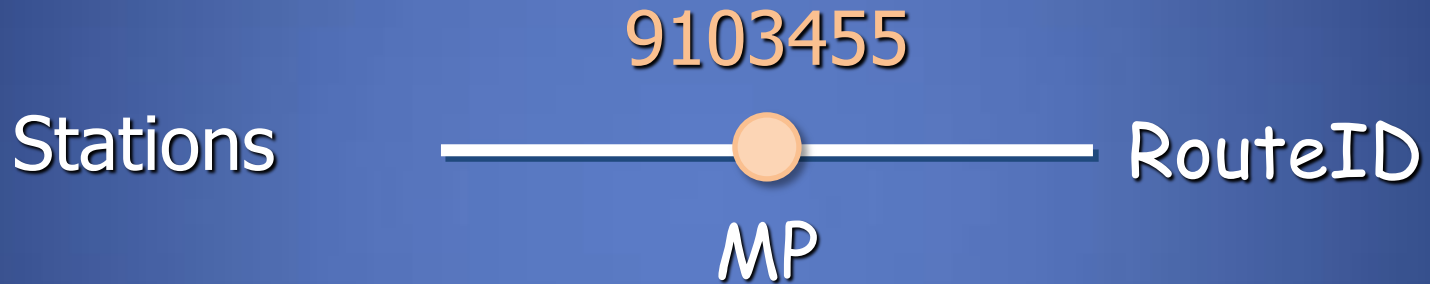
What are we referencing?

- Stations – points on the highway where we collect traffic data
- Segments – extent of highway the traffic data is reported

We collect data on stations and report it on both stations and segments

Referencing Basics

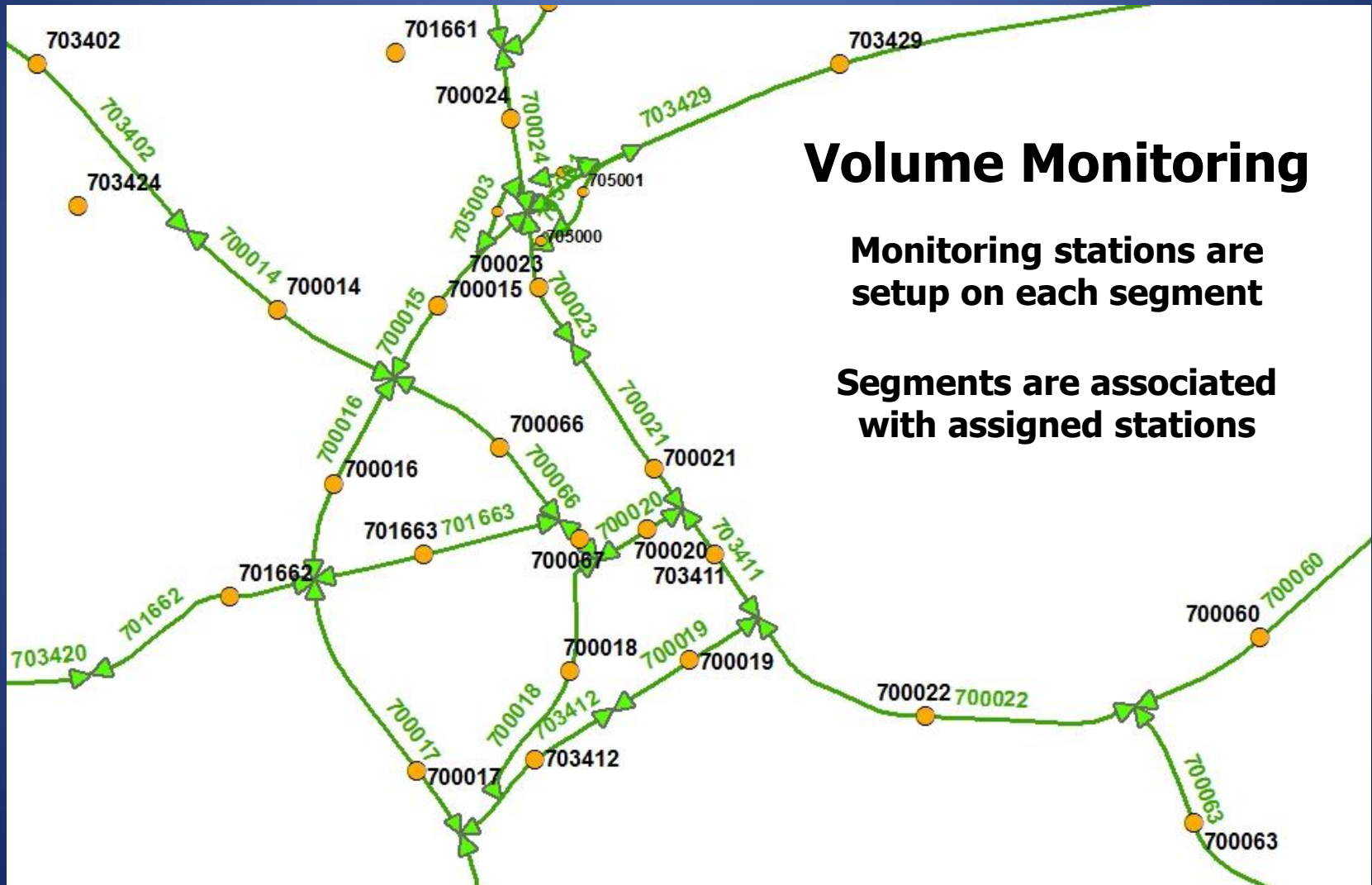
Linear referencing this data:



We have 2 LRS tables, one for each type

Referencing Traffic Data Effectively

Referencing Example



Referencing Development

But we need to reference other data! How?

- Prefer 1 set of tables > minimizes maintenance work for GIS changes
- Must support generating publications for all traffic data types for all uses
- Must be flexible but simple

We developed some basic rules to do this

Referencing Development

Our traffic referencing rules:

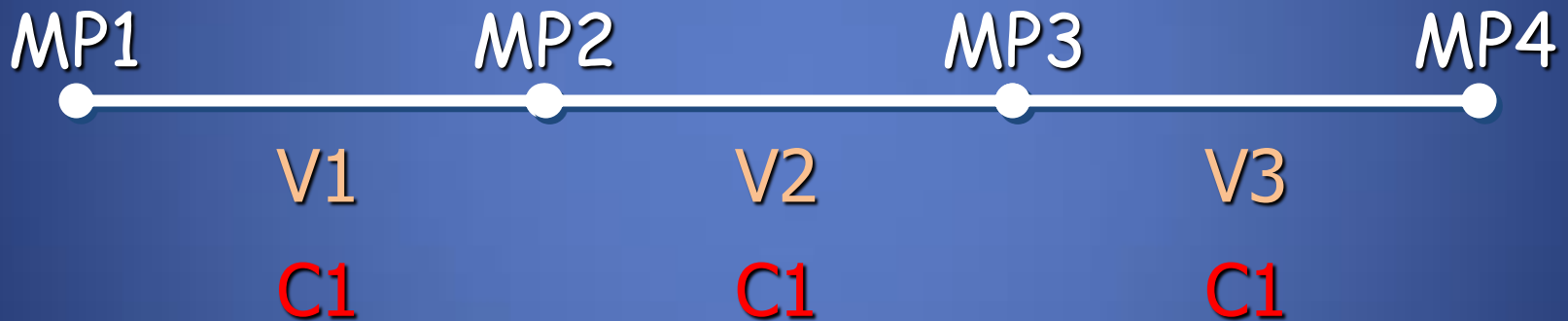
- We maintain references for the link to traffic data, not the traffic data itself
- AADT monitoring has the finest level of segmentation (highest resolution)
- All other data types must be referenced using the AADT segments

This simplifies the process significantly

Referencing Development

Applying the business rules:

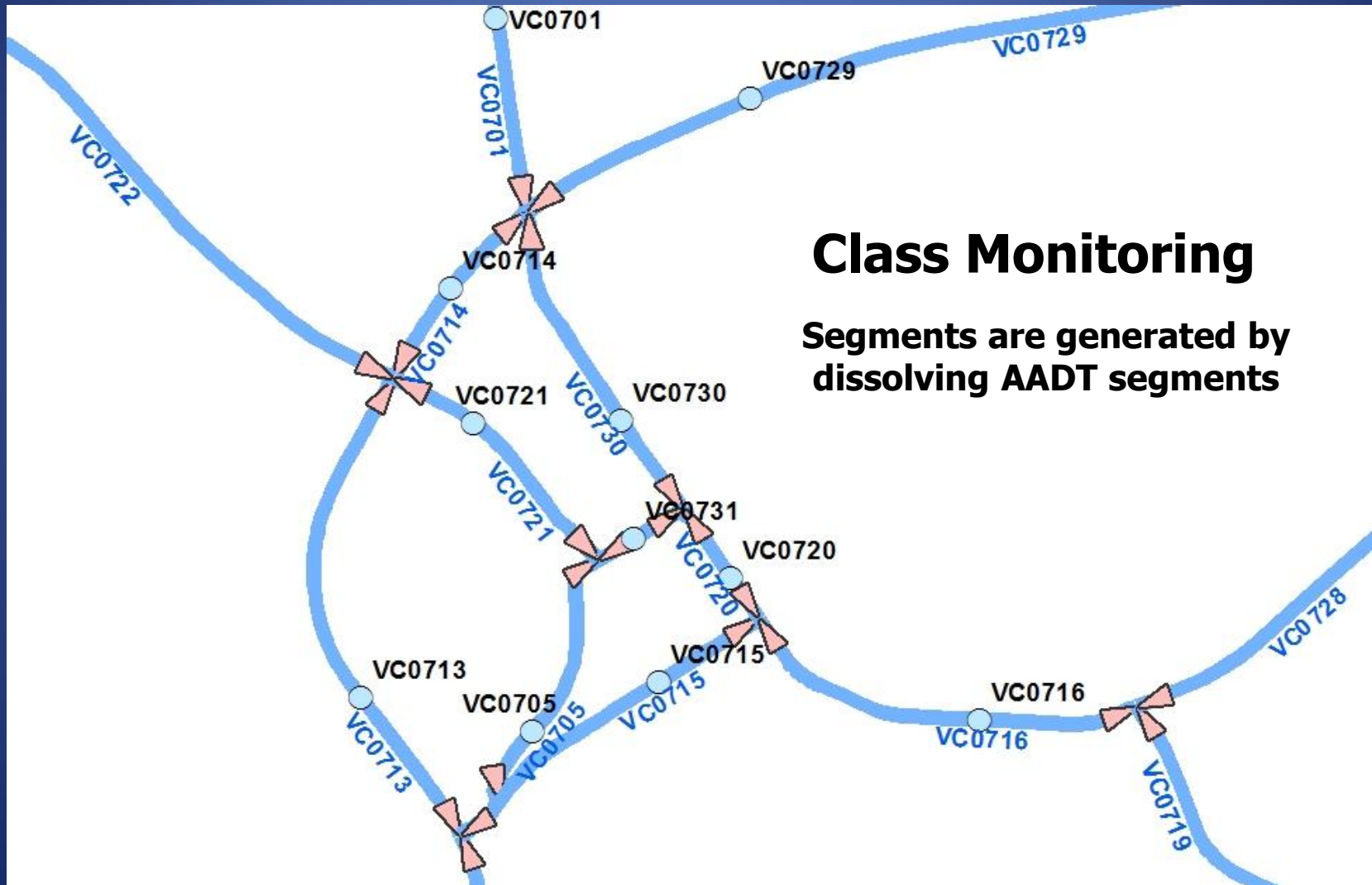
AADT Refs



Class Ref



Referencing Example



Publishing Data

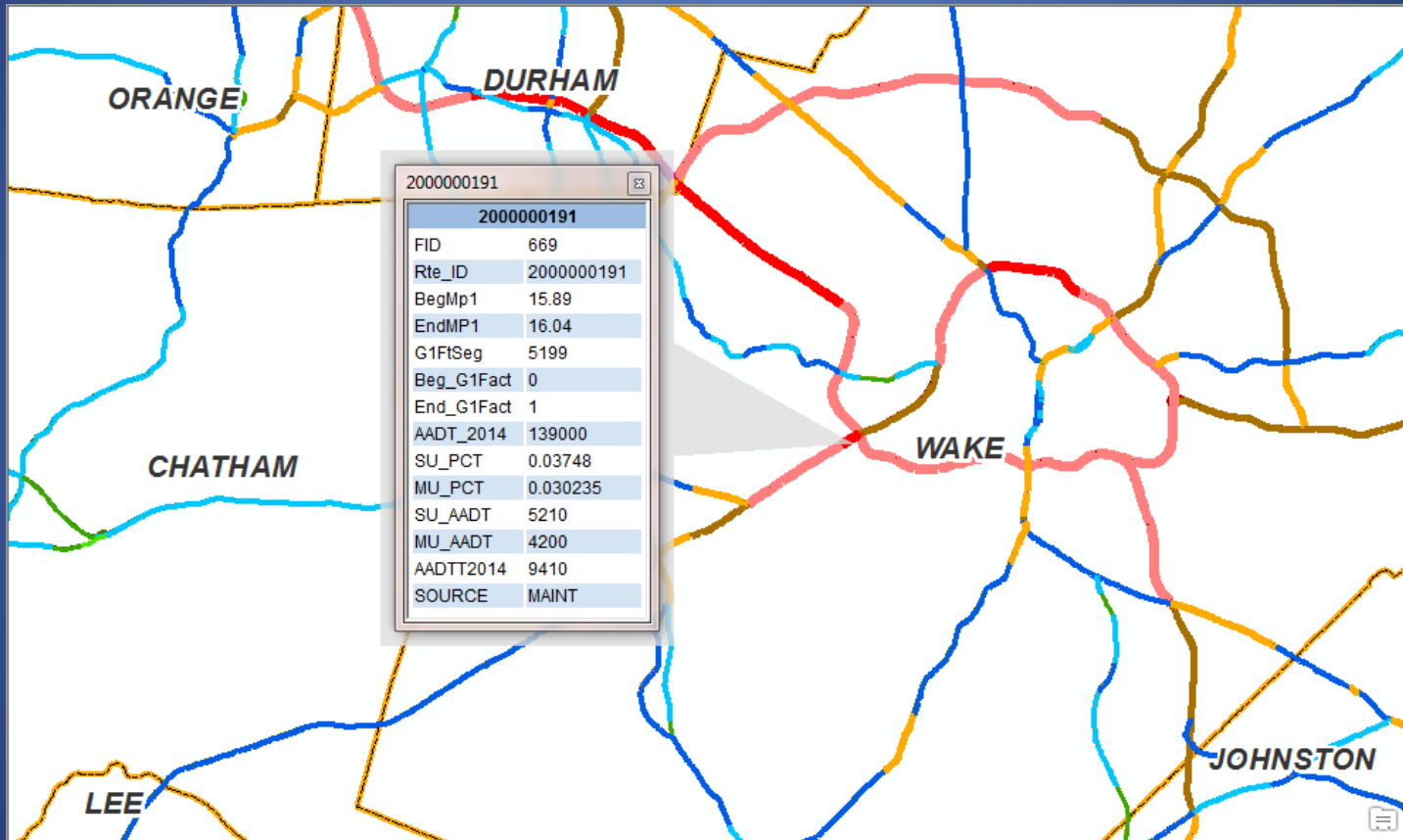
We want to publish data for:

- HPMS – Meet the requirement
- General – commonly used traffic statistics
- Specialty Users – planning, pavement, freight, maintenance, others

In some cases, the referencing for one use is not suitable for other uses

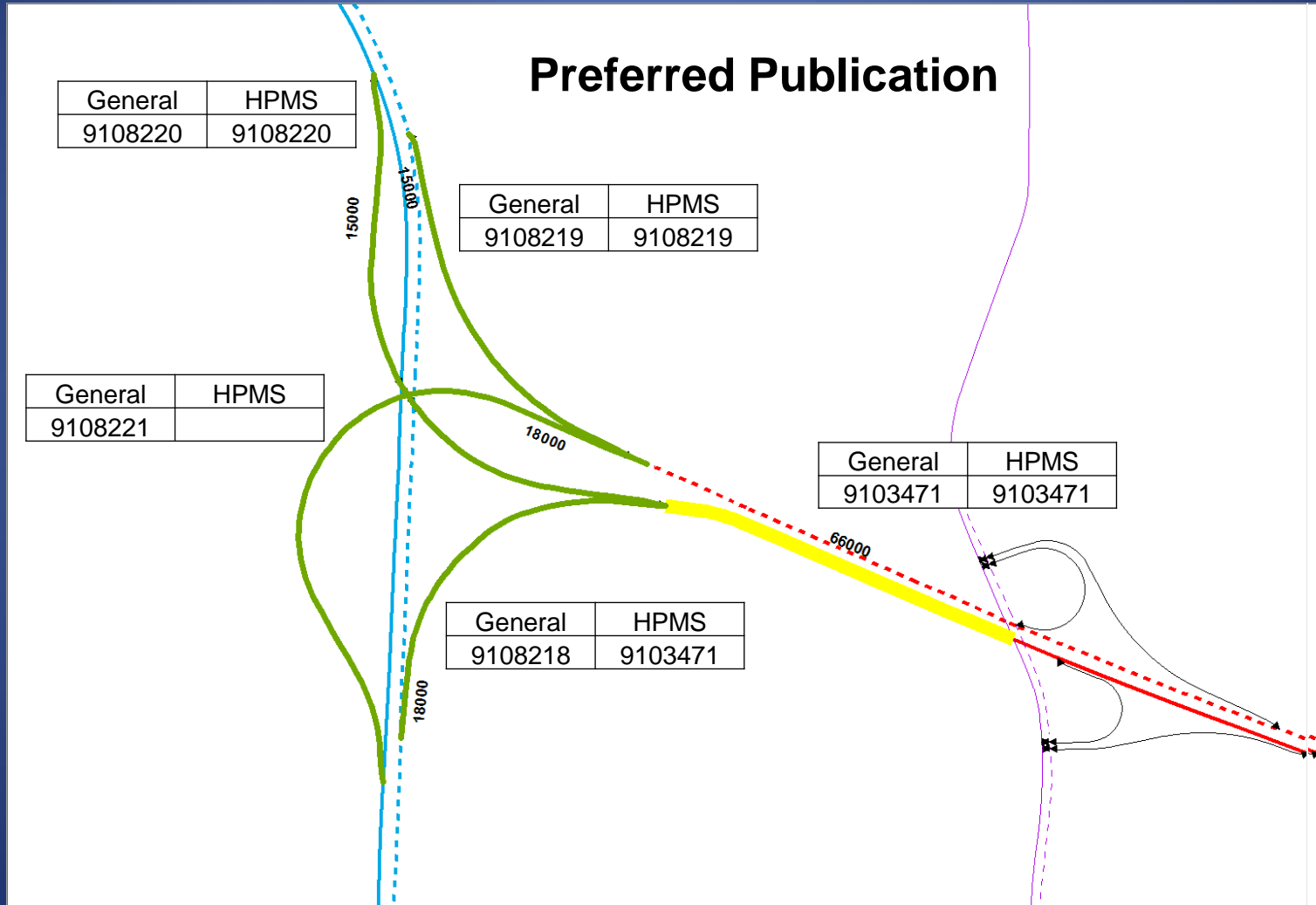
Truck Statistics from Short Term Counts

Published Statistics



These statistics are the most commonly used by our customers

Publishing Versions



Publishing Data

Event tables are needed also:

Traffic



LRS



AADT



Truck Stats

Etc.....



Enterprise

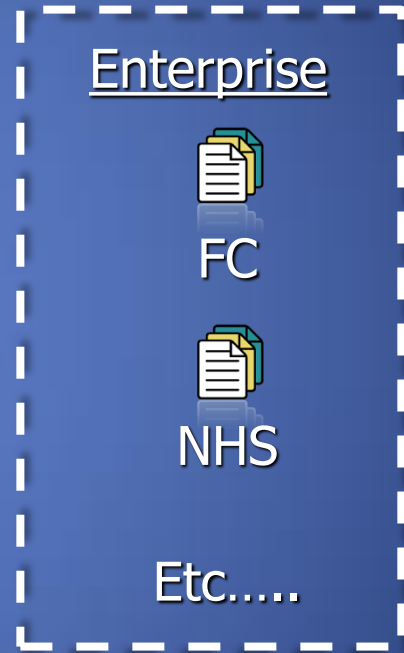


FC



NHS

Etc.....



This is how the data is related, for our customers and for us too

Referencing Traffic Data Effectively

Publishing Data

GO! NC
NCDOT GIS Online



NCDOT 2016-2025 STIP



NCDOT Functional Class



NCDOT Average Annual Daily Traffic (AADT) Map



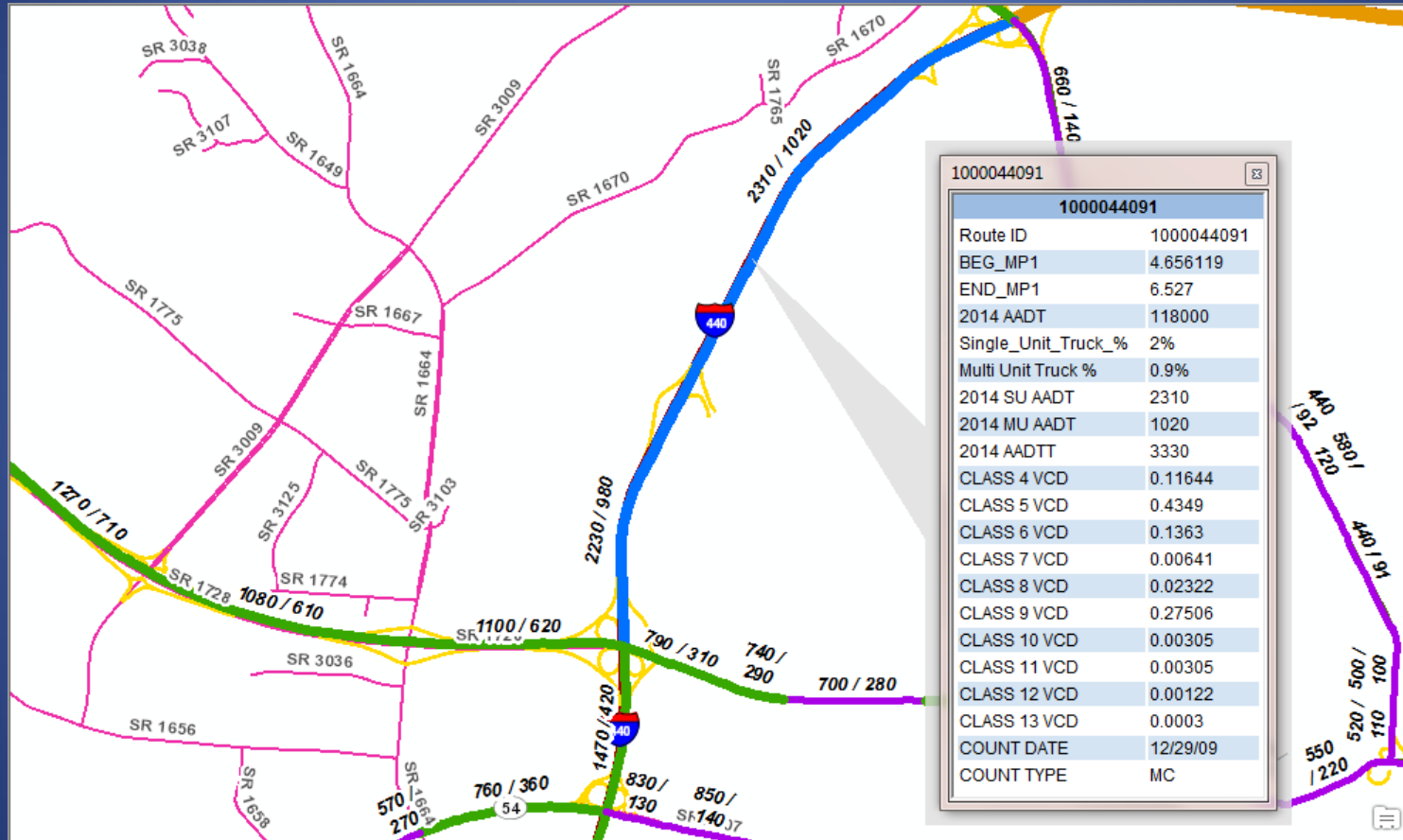
NCDOT Mitigation Site Map

GO! NC is the North Carolina Department of Transportation's (NCDOT) portal through which NCDOT staff, business partners, and others can access and publish geospatial information pertaining to transportation in North Carolina.

This is how the data is connected, using AGOL

Truck Statistics from Short Term Counts

Publishing Data



This is a new publication for the pavement designers

Effective Referencing

These resources are:

- Simple – rules and LRS table design
- Related – using published event tables
- Connected – AGOL maps and services

It's still a work in progress!

Referencing Traffic Data Effectively



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