Conflation Procedure to Combine Speed and Volume Datasets for MAP-21

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Overview

- Mobility performance measurement
- Traffic and speed dataset differences
- Network segmentation
- Conflation process
- Some do’s and don’ts
- Conclusions

Conflation = Herding Cattle?

Doesn't have to be that way...

Mobility Performance Measurement

- Key variables (summed and averaged)
  - Delay
  - Travel Time Index
  - Planning Time Index
- What do all of these need?
  - Traffic volumes (vehicles or people)
  - Travel speeds

Traffic and Speed Network Differences

- Traffic (volumes)
  - Roadway segments defined by physical changes along the road (volumes, pavement, structures, ramps, etc)
  - Directional or cross-sectional
- Speed
  - Roadway segments defined by travelers (often tied to things that affect travel, decision-making, ramps, etc)
  - Directional

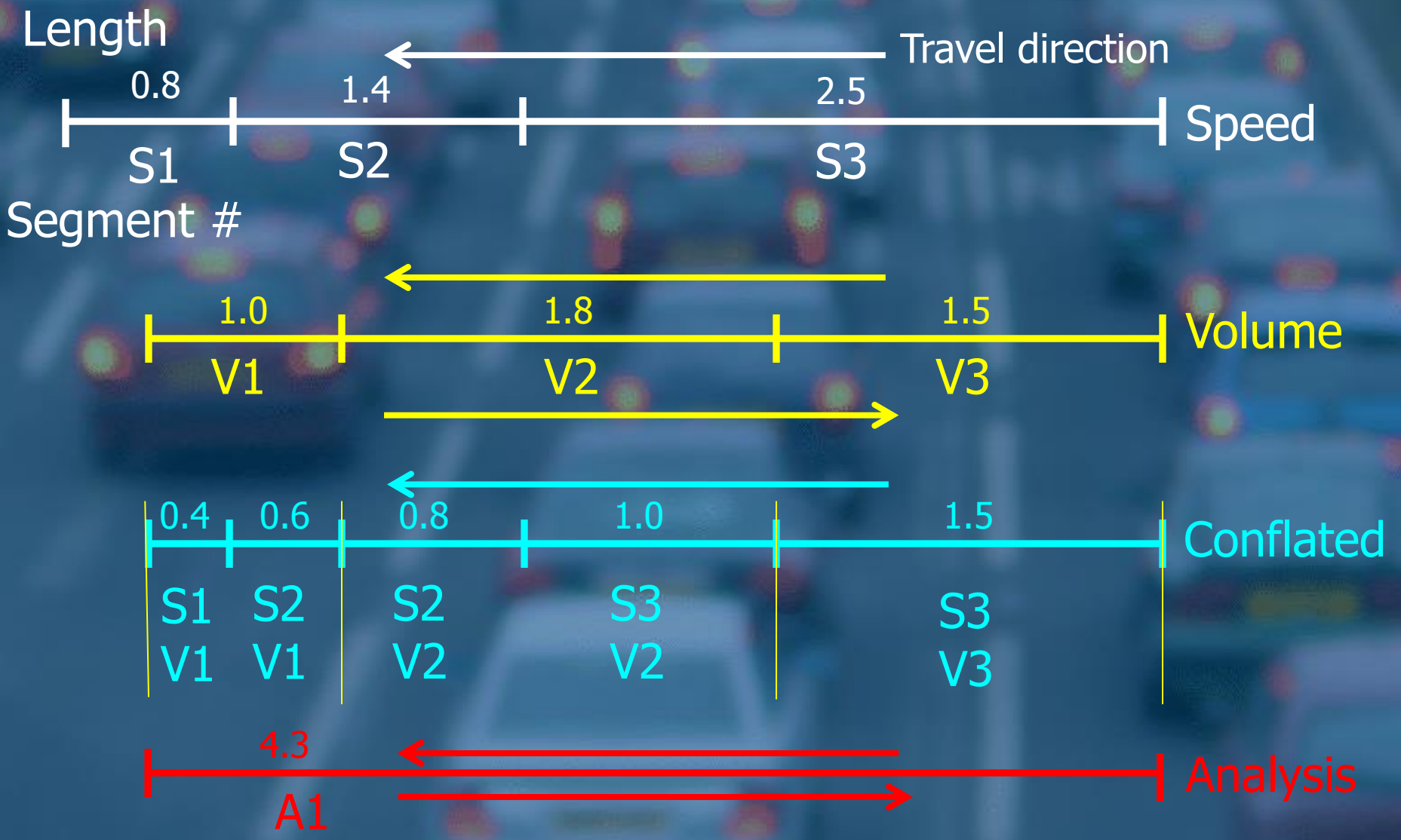
Segmenting Roadway for Analysis

- Determine base network
  - Agency network or speed network?
- Split the base network into logical segments for analysis.
  - Avoid analyzing very short segments since most solutions will not be applied to a single short segment
  - Interchange to interchange?
  - Major cross-streets?

Conflation Process

- Conflation process combines the two networks.
  - The information from the top layer is applied to the information on the base layer.
  - Usually a multi-step process due to directional roadway information
- Upon completion, each road segment will have all of the necessary information to calculate performance measures

Conflation Process Example



Conflation Process Details

- Multi-step process
- There are many methods to do this
- Not going to go into technical details
- Many software packages
- Many different tools

Do's and Don'ts

- Do's
  - Choose base network with end result in mind
  - Consider all needed info based on measures
  - Bring conflated lengths of top network onto base network
  - Calculate with VMT and not lengths
- Don'ts
  - Conflate without being able to do weighted averages
  - Calculate without weighting

Conclusions

- Conflation is perhaps the most important step in the performance measurement process (and may take the most time)
- Know your end product before you begin
- Ensure you have everything you need prior to conflation
- Think about “reporting” segmentation
- Use VMT to “weight” across the segments

Mobility Study Websites

- ***Urban Mobility Report***
  - Annual congestion estimates
  - 101 urban areas intensively studied
  - http://mobility.tamu.edu
- **Mobility Measurement in Urban Transportation**
  - FHWA Pooled Fund Study – 15 sponsors
  - Performance measures
  - Corridor & Multimodal analysis
- **TxDOT's 100 Congested Roadways**
  - http://www.txdot.gov/inside-txdot/projects/100-congested-roadways.html

- Email: d-schrank@tamu.edu