

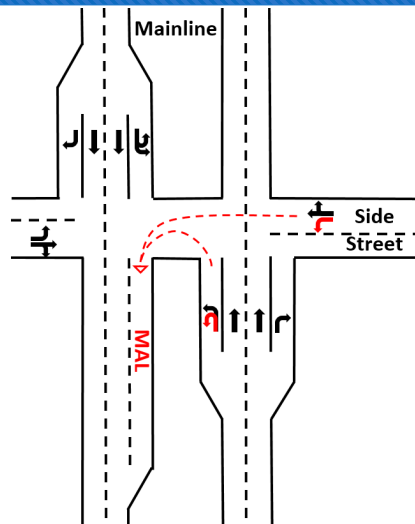
Median Acceleration Lanes

Minnesota TZD Conference
Thursday, October 26, 2017

Max Moreland – Spack Consulting

Definition

MAL:
Median Acceleration Lane



Study Purpose



Answer Key Questions:

- When are Median Acceleration Lanes (MALs) used?
- What is the difference in usage between cars and trucks?
- Does the amount of traffic (during peaks, on the mainline, or on the side street) influenced their use?
- Do historic crash records show an improvement in safety?



Study Purpose - MnDOT



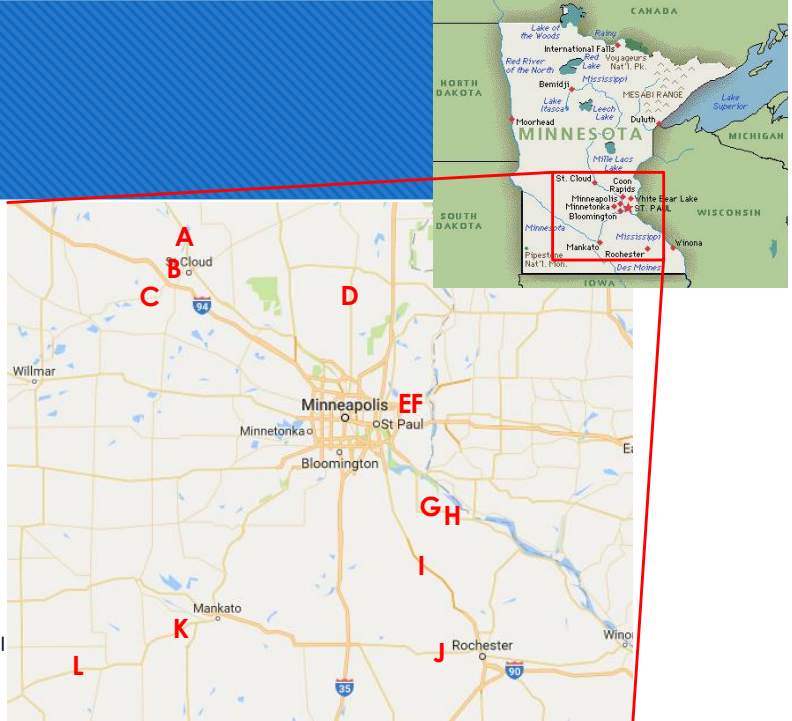
- Currently limited experience with MALs but position in Road Design Manual encourages use... "where appropriate"
- Road Design Manual provides desirable lengths for MALs but are they appropriate
- Can better guidance be presented on when and when not to consider MALs



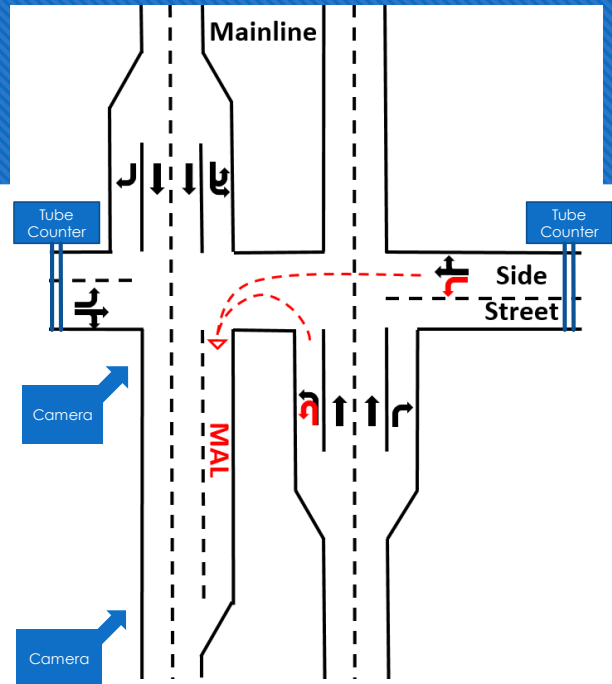
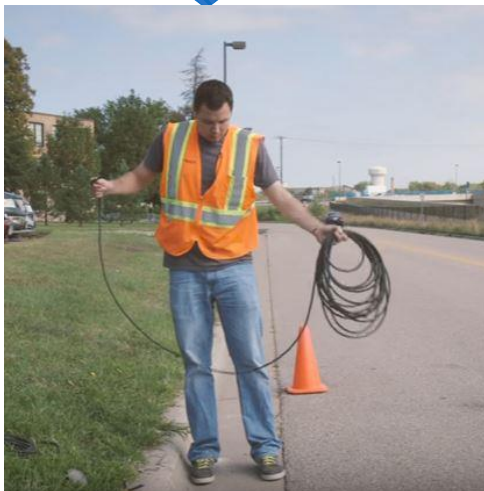
**ROAD DESIGN
MANUAL**

Locations

- A. TH 10 EB at Benton CSAH 31 near Rice
- B. TH 23 NEB at 36th Avenue near St Cloud
- C. TH 23 EB at Fairway Drive near Cold Spring
- D. TH 65 SB at 245th Avenue near Bethel
- E. TH 36 WB at Demontreville Trail near Lake Elmo
- F. TH 36 WB at Demontreville Trail near Lake Elmo
- G. TH 61 EB at TH 316 near Welch
- H. TH 61 EB at Goodhue CSAH 18 near Welch
- I. TH 52 NB at TH 57 near Hader
- J. TH 14 EB at 280th Avenue near Byron
- K. TH 60 EB at Blue Earth CSAH 109 near Lake Crystal
- L. TH 60 WB at Watonwan CSAH 2 near Butterfield



Data Collection



Data Co

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Spack
CONSULTING



Data Collection

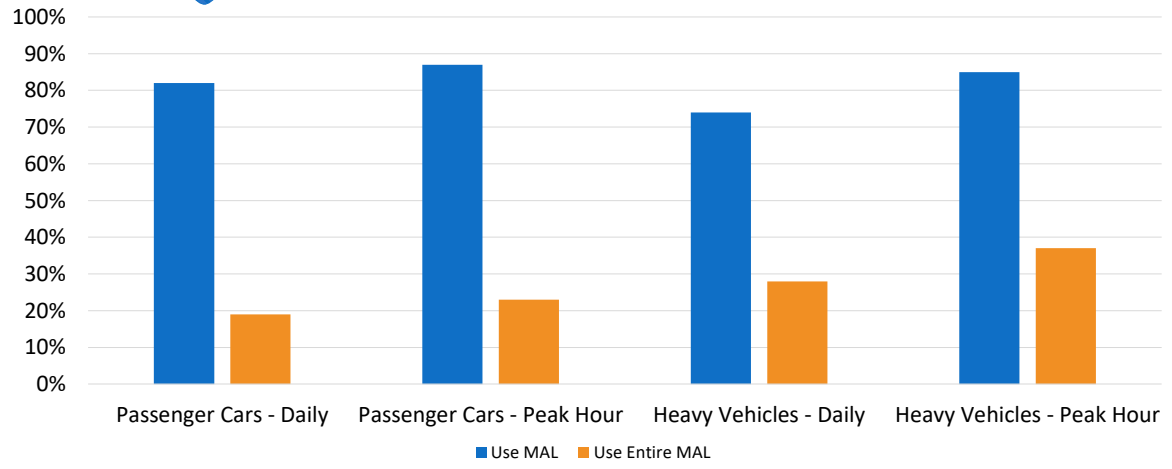
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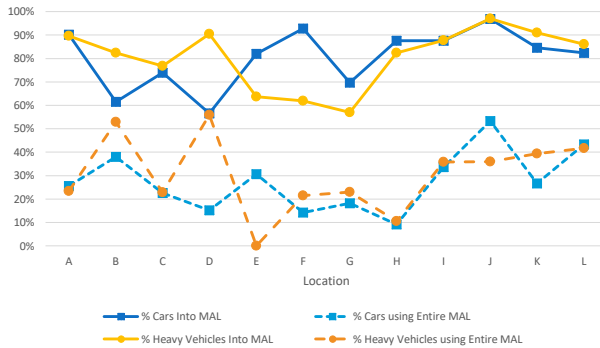
Results



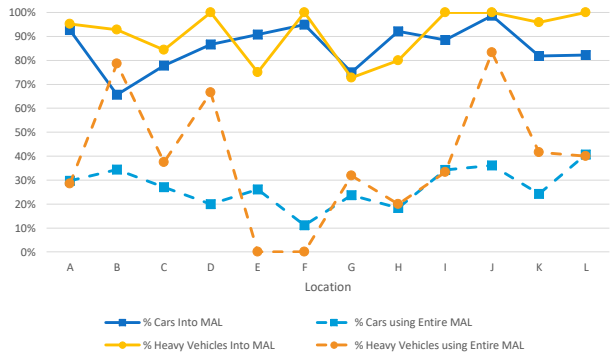
Results by Location



Daily MAL Results



Side Street Peak Hour MAL Results



Safety Impacts



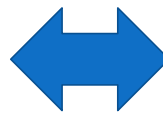
Fatal and Serious Injury Crashes



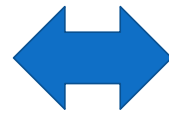
Rear End Crashes



Side Swipe Same Direction Crashes



Right Angle Crashes



Analysis



- Most vehicles use MAL (about 75% - 85%)
 - More cars use MAL compared to heavy vehicles
- Most do not use entire length (about 25% - 35%)
 - More heavy vehicles use entire length compared to cars
- MAL usage during peak hours higher than over course of day
- Not a strong correlation between mainline AADT and MAL usage
- 50% decrease in fatal and severe injury crash rate
- 18% increase in the overall total crash rate

Applications



- Is the guidance in the Road Design Manual Appropriate?
- Are MALs needed?
 - They get used frequently
 - Limited Operational Impacts
- If they are needed are they right sized?
 - 65 MPH road MAL is 1670' plus 1:40 taper
 - 2200 ft of 14' road costs @ \$10-20/SF = \$\$\$\$



ROAD DESIGN MANUAL

Conclusions



- MALs are used by a majority of drivers
- Some similar findings compared to previous study of MALs
- Showed a decrease fatal/severe injury crashes but not statistically significant
- More work needed