



E-Z Cruise™ Transit Bus Evaluation

Top Rear Y Axis Positions (Sway Analysis)



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- May 24, 2004 (Updated 08-25-04)





E-Z Cruise™ Bus Evaluation



Objectives

- Instrument Bus
- Measure Sway (Low Frequency Lateral Motion: 0-2 Hz)
- Quantify Sway Reduction with E-Z Cruise™ Installed



E-Z Cruise™ Bus Evaluation



Methods

- Accelerometers installed toward upper rear corners of interior
- Lateral accelerations (Y axis) to be measured
- Road course of 14 minute drive containing multiple road/driving conditions



Accelerometer Placement



Instrumented to Measure the Sway at Lower Frequencies

Channel 2

Channel 5





Directions of Measurement



Capture the Lateral Motion at Lower Frequencies

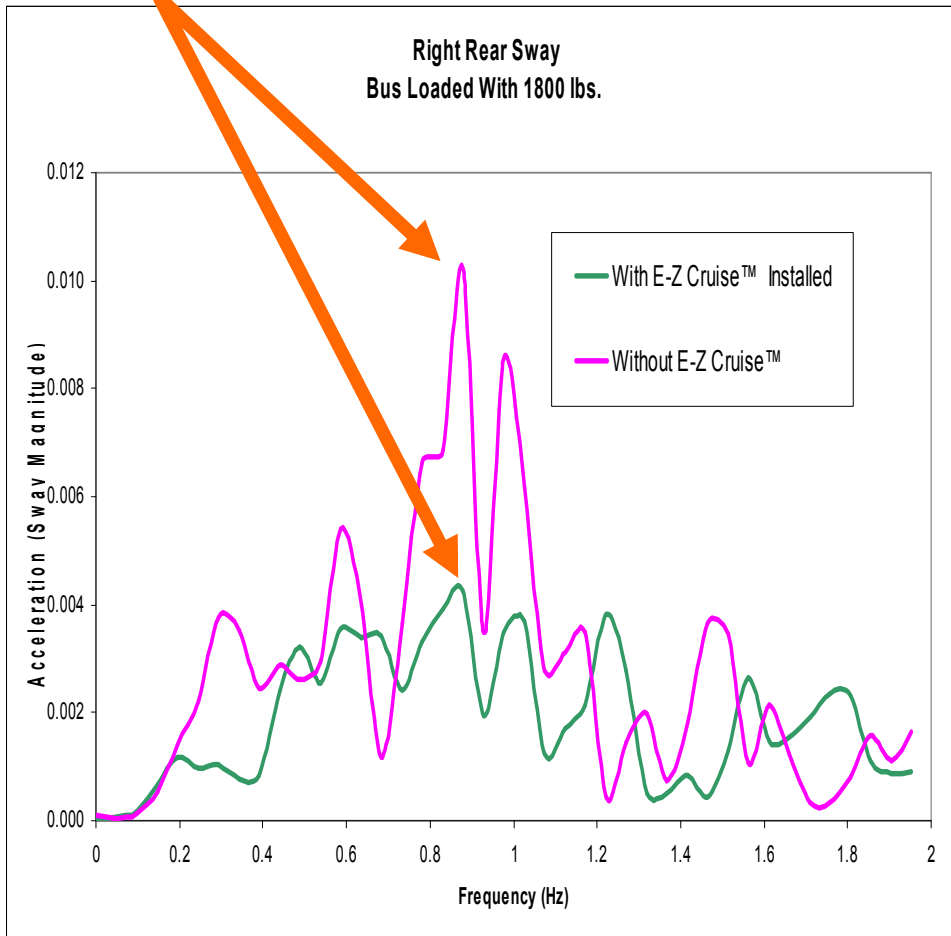




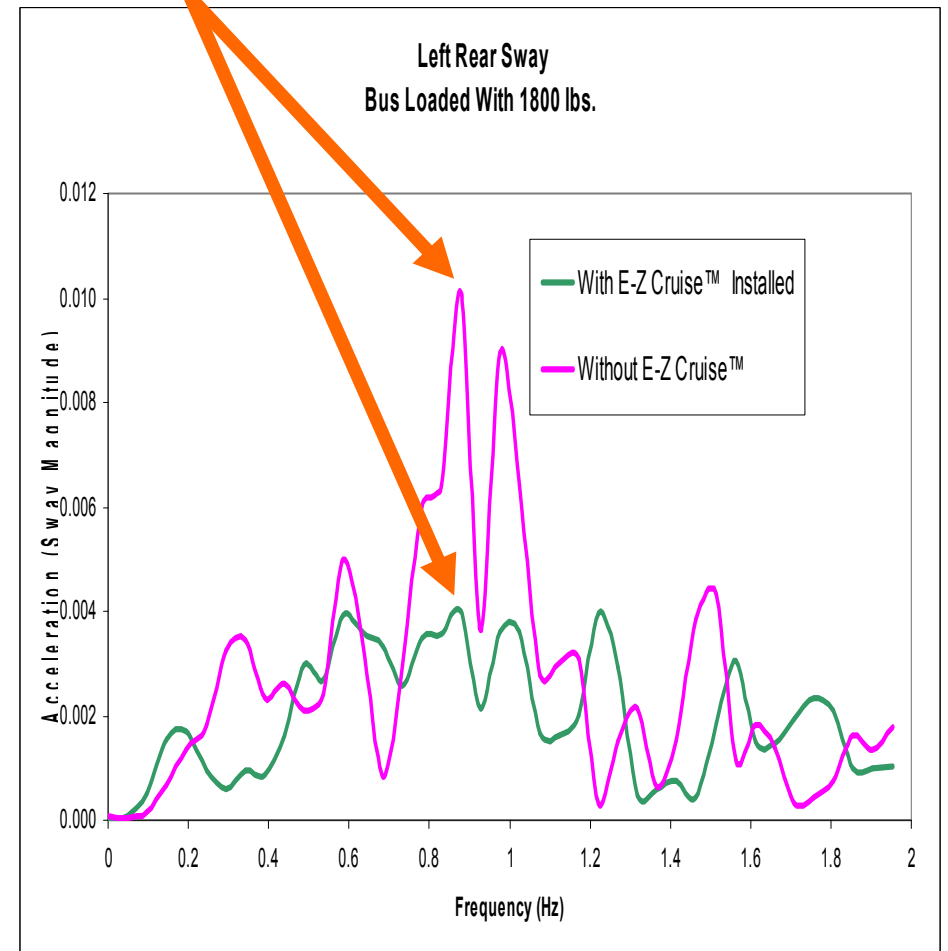
Highway Driving 55 mph (N US 15)



58% Reduction PEAK SWAY MAGNITUDE



61% Reduction PEAK SWAY MAGNITUDE

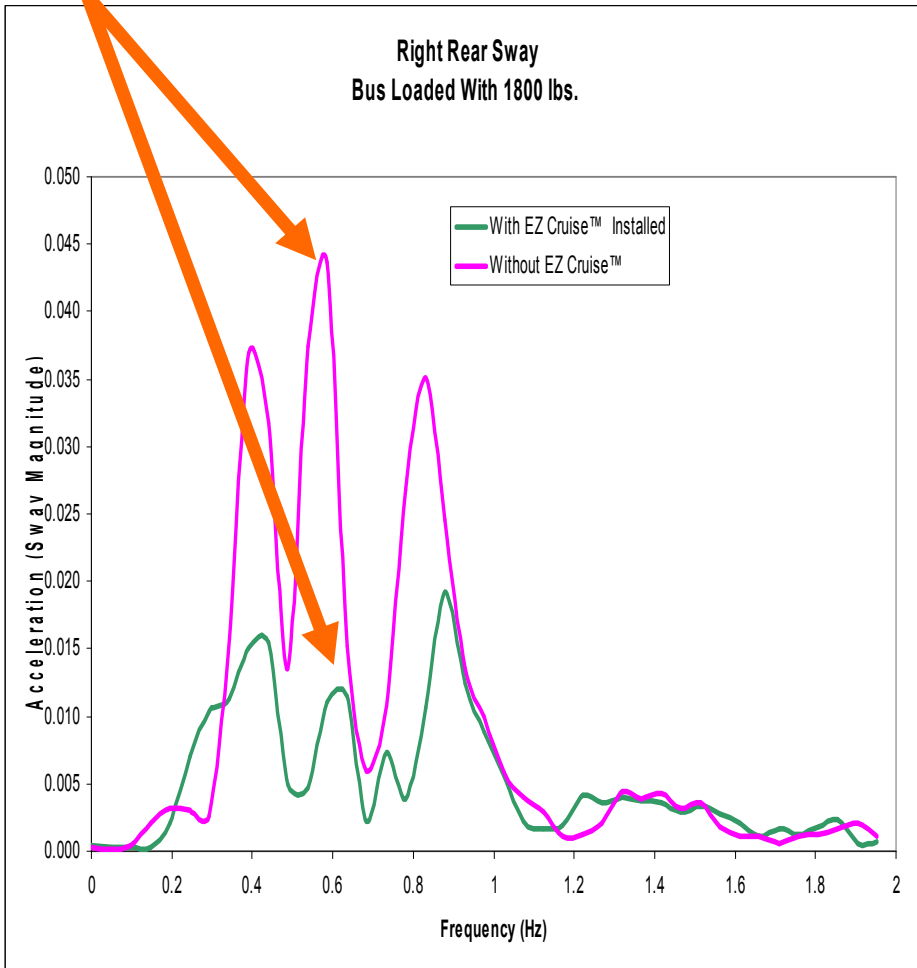




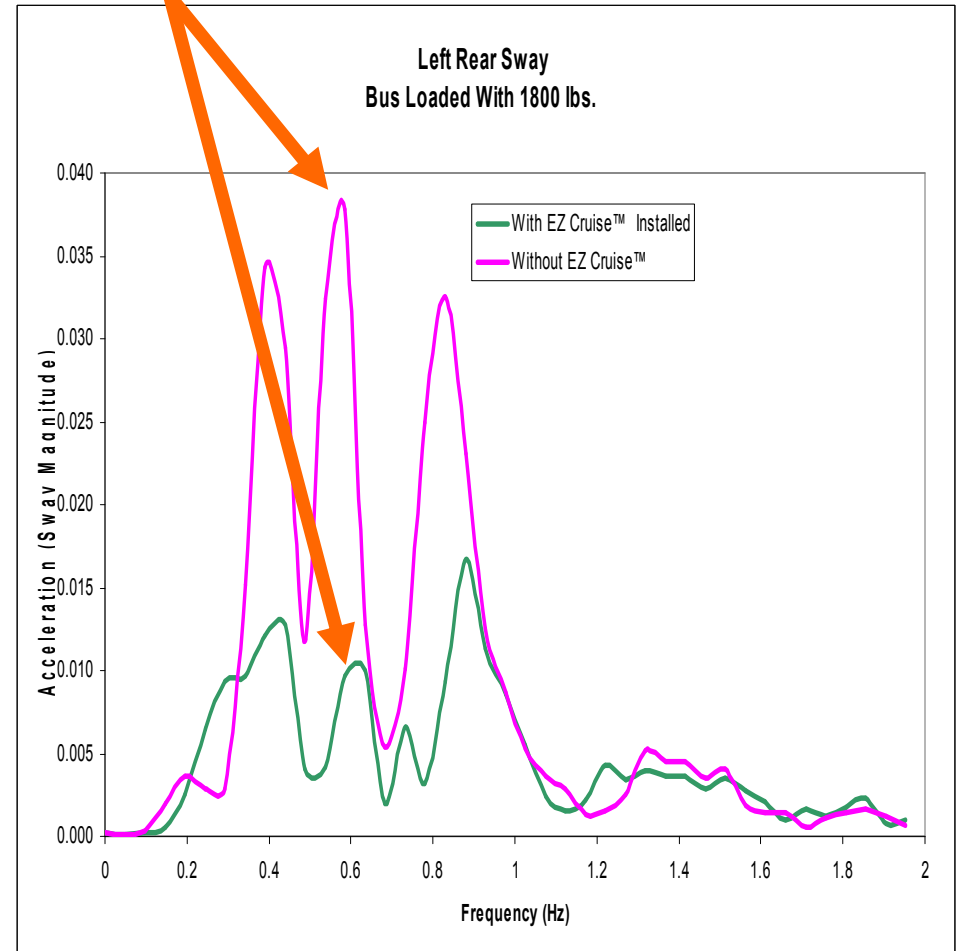
Ascending Sweeping RH Curve, Bridge, Descending Sweeping LH Curve, Highway Speed (N US 15)



74% Reduction
PEAK SWAY MAGNITUDE



73% Reduction
PEAK SWAY MAGNITUDE

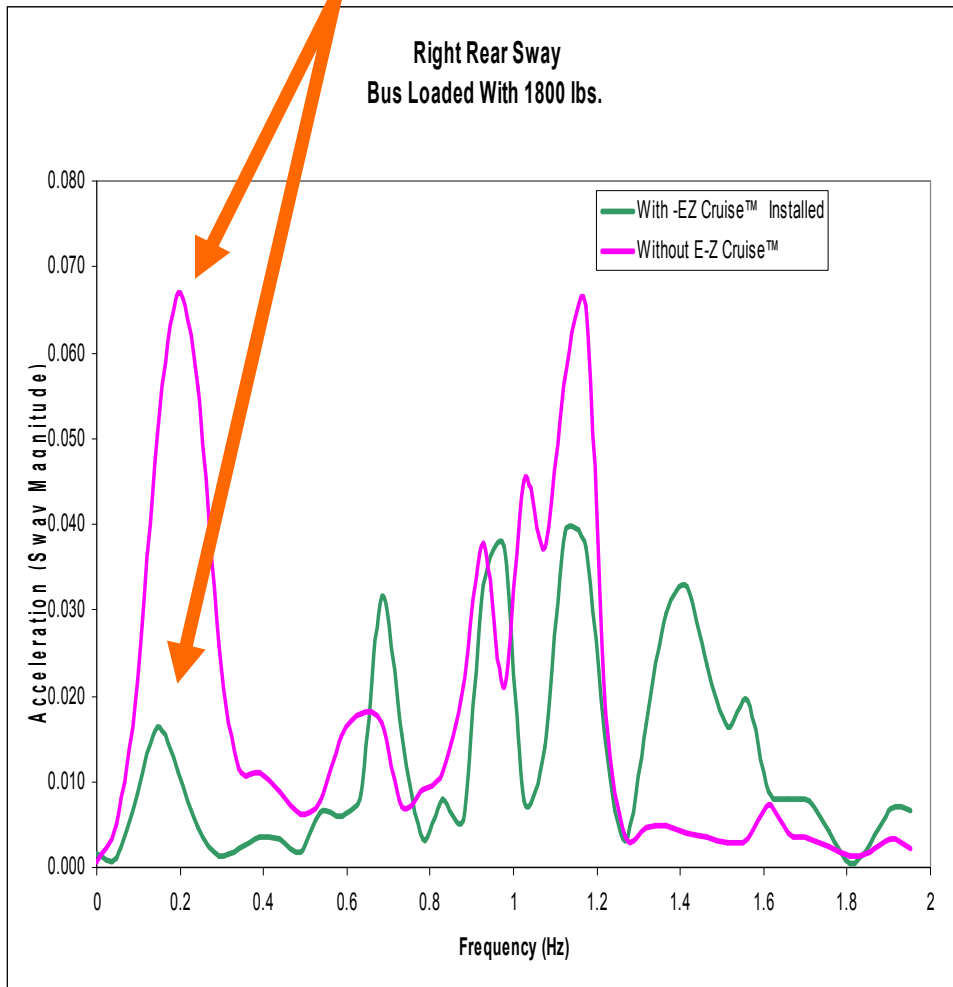




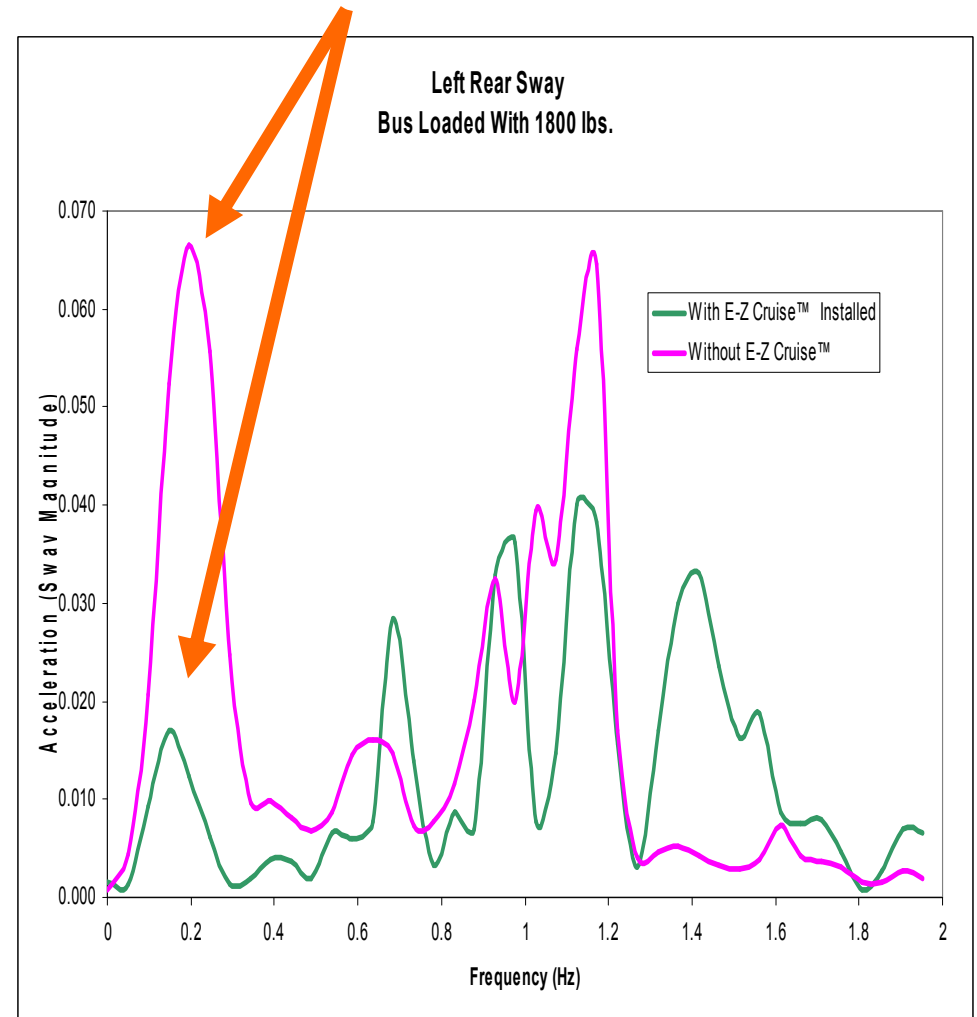
RH Turn, Cross RR Tracks, RH Turn, Accelerating (N US 15, E US 6, S Old 15)



74% Reduction
PEAK SWAY MAGNITUDE



74% Reduction
PEAK SWAY MAGNITUDE



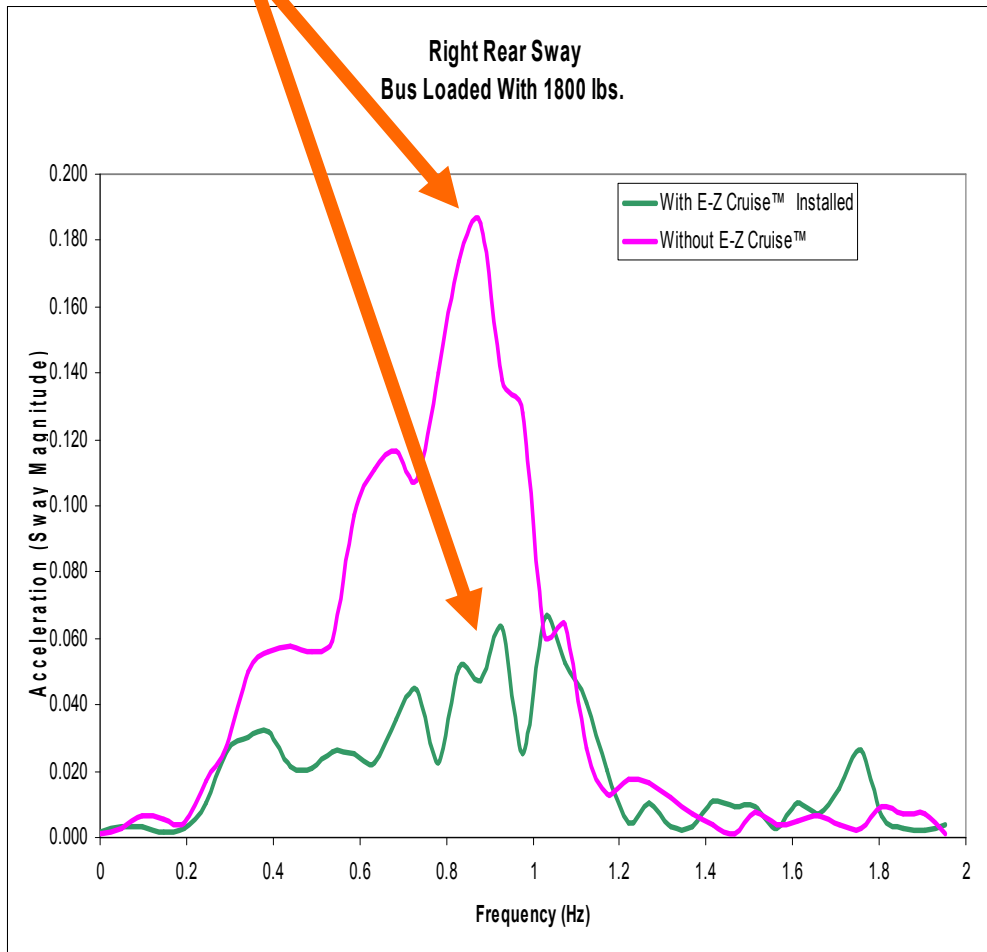


RH Turn, Cross RR Tracks, Stop 2ND RR Track

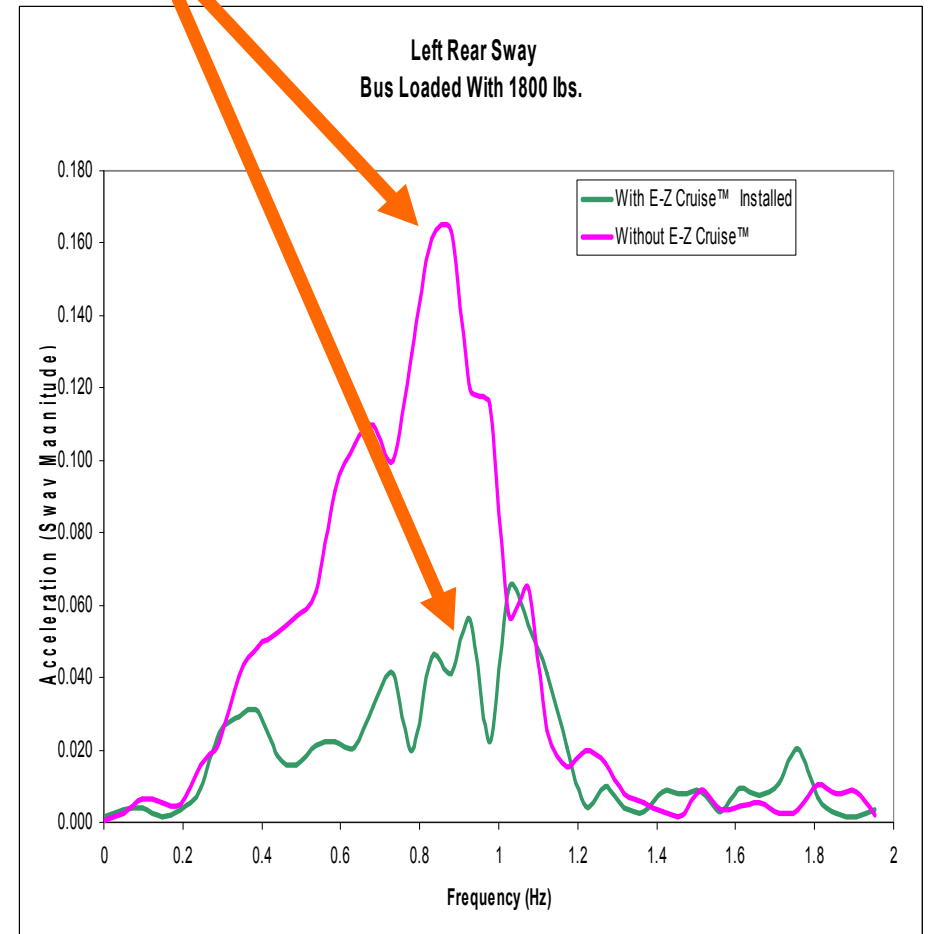
(Milford Junction from North Old 15)



66% Reduction
PEAK SWAY MAGNITUDE



66% Reduction
PEAK SWAY MAGNITUDE

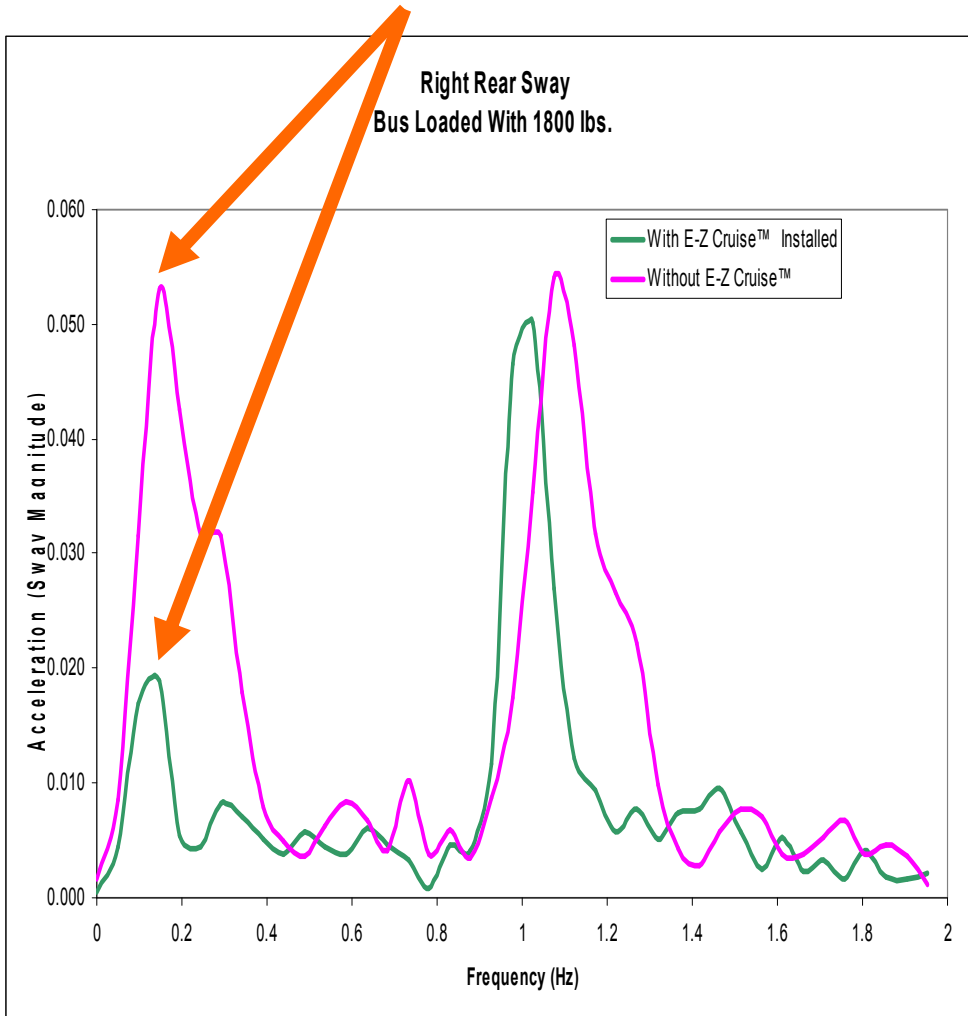




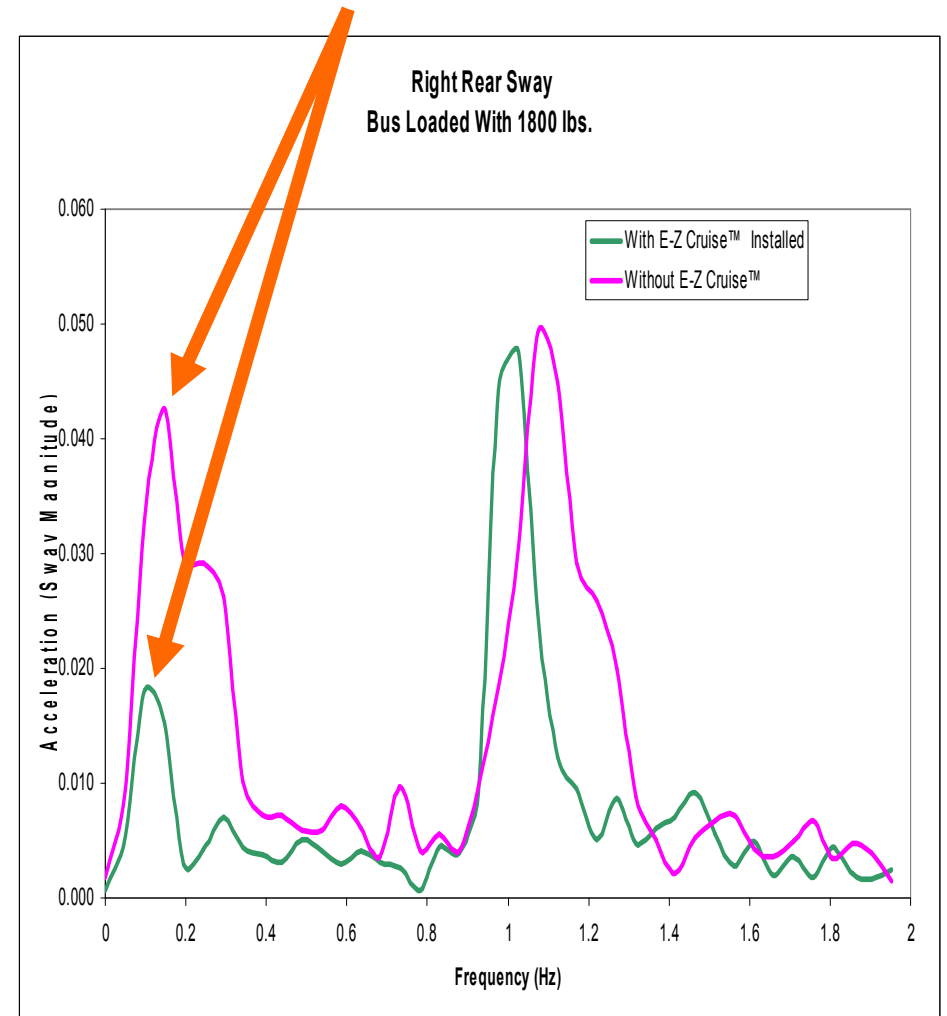
Stop, LH Turn, LH Turn, Cross RR Tracks, Stop (Milford Junction)



64% Reduction
PEAK SWAY MAGNITUDE



58% Reduction
PEAK SWAY MAGNITUDE

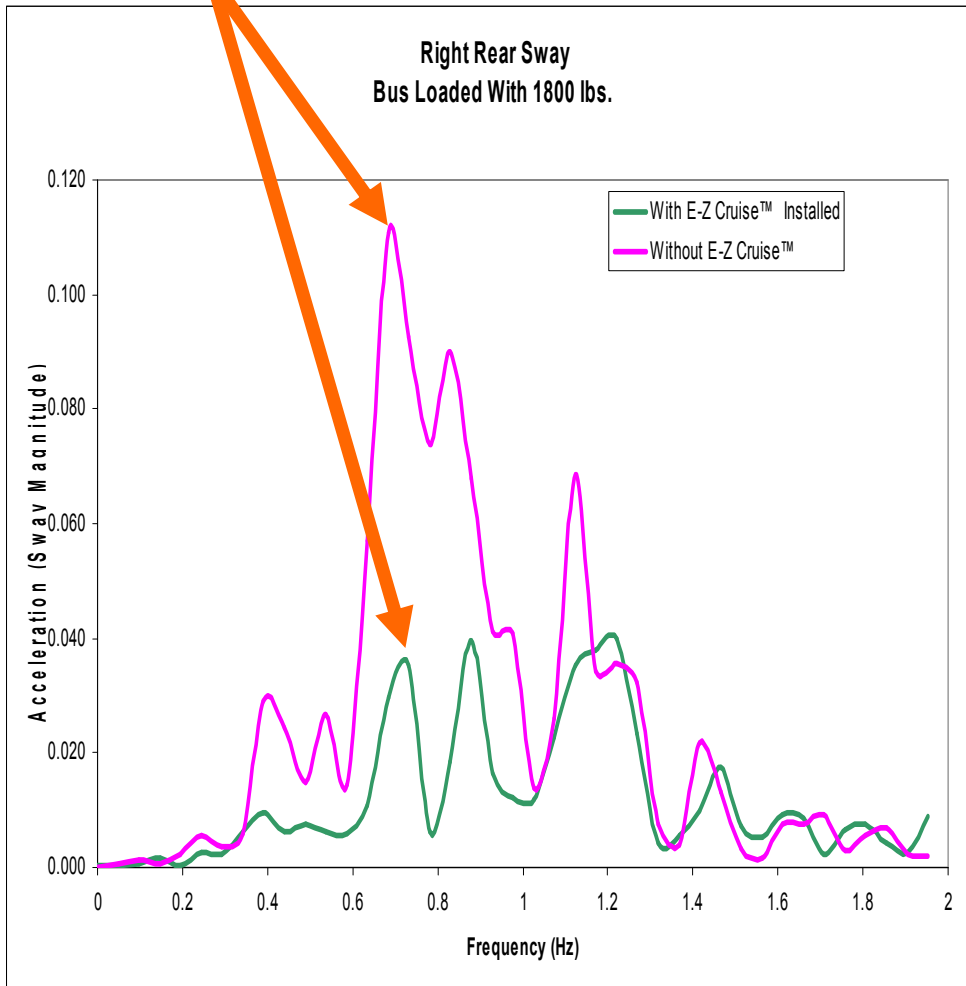




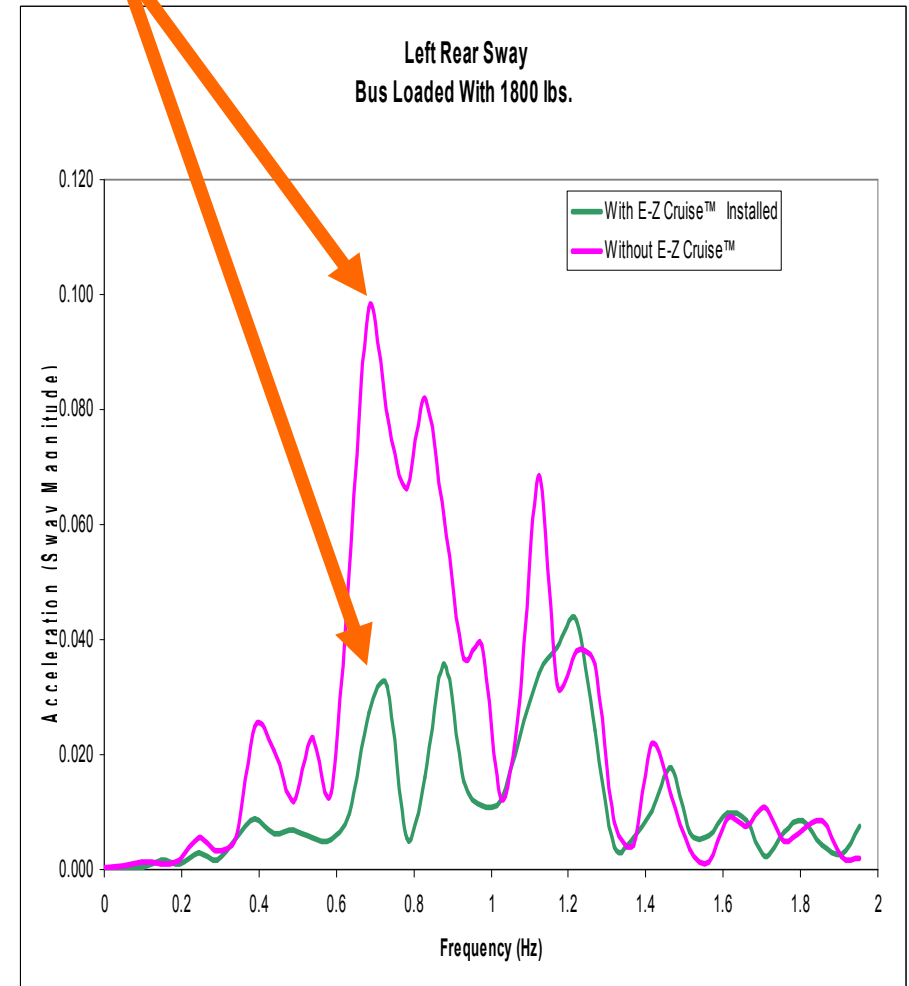
Southbound on Chip and Seal (Old 15)



68% Reduction
PEAK SWAY MAGNITUDE



68% Reduction
PEAK SWAY MAGNITUDE





E-Z Cruise™ Bus Evaluation



Conclusions

- **The E-Z Cruise™ System Provides a Much More Stable Ride With Respect to Sway**
- **Data Shows Up to 74% Reduction in Peak Sway Magnitude for Certain Events**