

CE474: Traffic Systems Design-Fall 2004

Lab 3 – Fixed-Time Signal Design
September 07, 2004

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Today's Activities

- ◆ 11:00 – 11:20 Review of resources available
- ◆ 11:20 – 11:40 Future volume prediction
- ◆ 11:40 – 12:30 Fixed-Time Signal Design [NIATT Web-tutorial]
- ◆ 12:30-12:40 Break
- ◆ 12:40 – 1: 20 CORSIM/HCS OUTPUT

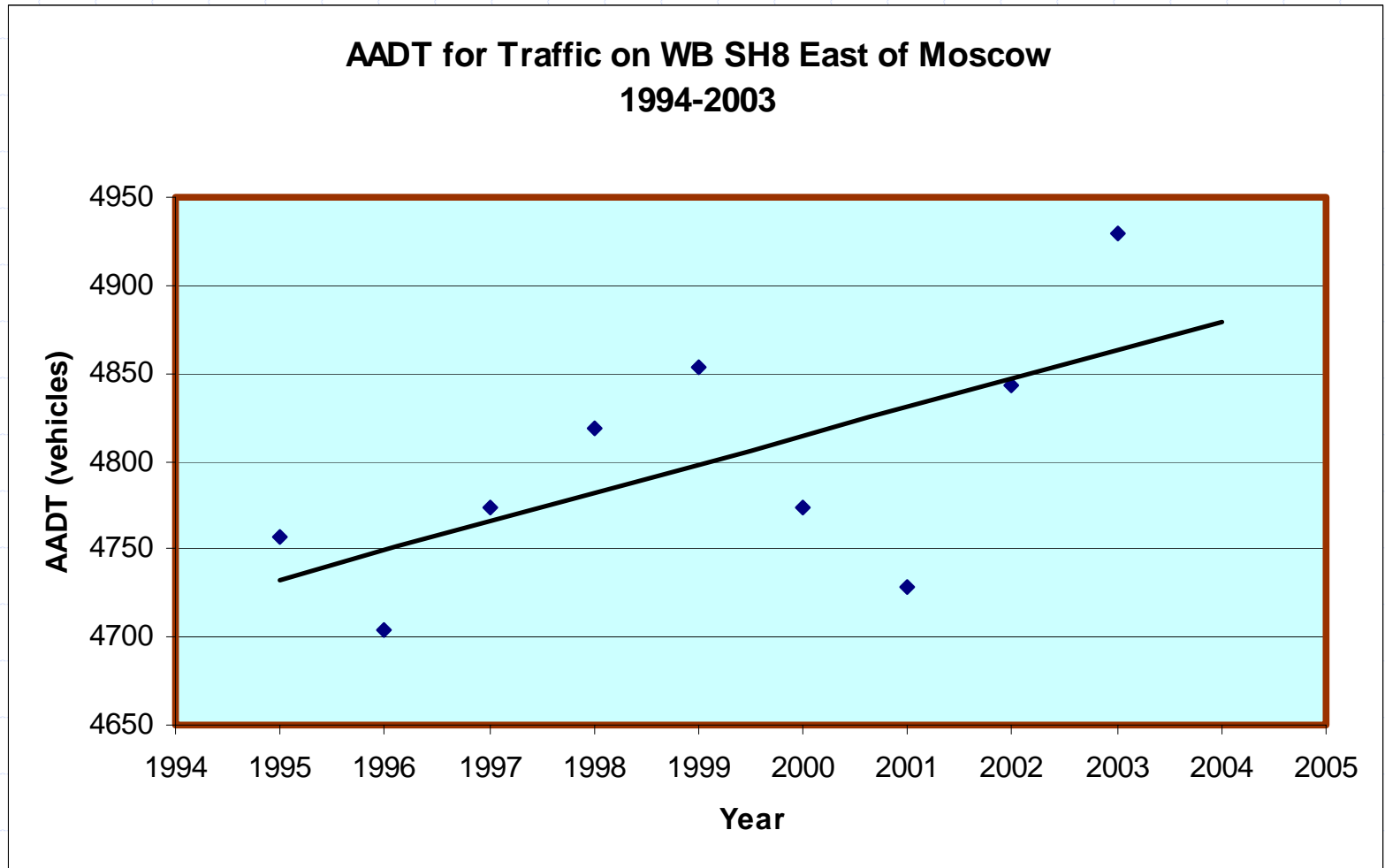
Assignment A1.03: *Document and assess the extent of available resources*

Student	Resource
Kebab, Mohammad Wassim Reed, James Evan Arellano, Lisa Jo	Idaho Transportation Department Traffic Manual (available on ITD CDROM)
Luo, Min Candia-Martinez, Mario Pakalapati, Srinivas Raju	Traffic Engineering Handbook (available as handout)
Wu, Lei Aeneni, Shravan Kumar	Traffic Control Systems Handbook (available on FHWA/DOT CDROM)
McLenna, Patrick Michael Gangula, Sreenath Reddy Baden, Andrew Christopher	NIATT Web-based Signal Design Tutorial
Orton, Brent Lee Auch, Alisha Fern	Manual of Uniform Traffic Control Devices (MUTCD)
Carter, Steven Neil Palmer, Charles Ray	Design Guidelines for Deploying Closed Loop Systems

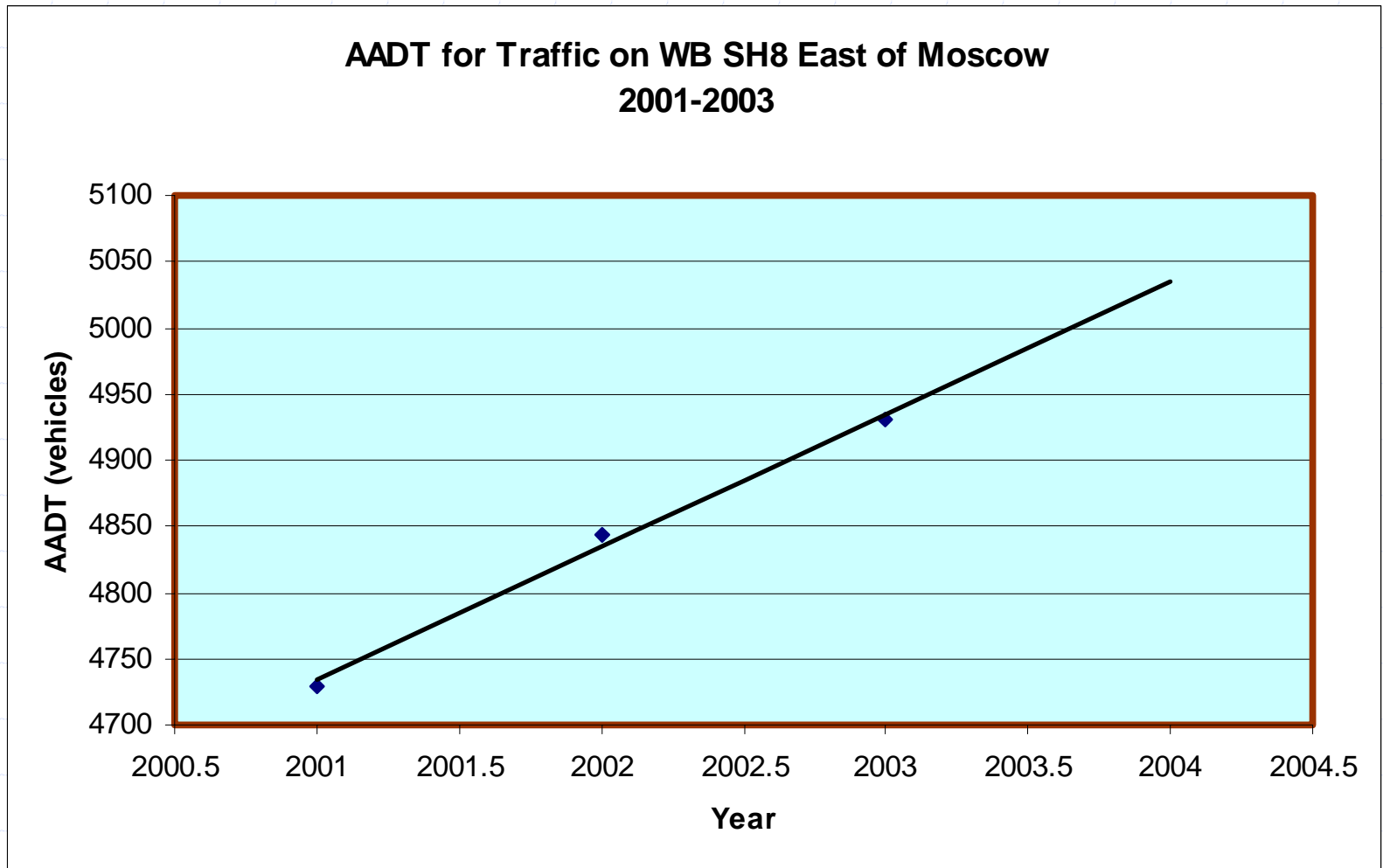
Assignment A1.04: *Prediction of Future Traffic Demand*

- ◆ Increase in traffic volume “growth rate?”
 - Resources: ITD count Stations
 - http://www.itd.idaho.gov/planning/reports/atr_wim/ATRdistrict/atr_d2.html
 - Traffic Trends for Average Annual Daily Traffic (AADT)

Assignment A1.04: *Prediction of Future Traffic Demand*



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Assignment A1.04: *Prediction of Future Traffic Demand*

◆ For Farm Lane Road:

- New 420 rental townhouses
- Assisted living for [120 beds]
- Increase in UI enrollment by 3200 new students

◆ For Warbonnet Road:

- Addition of 80,000 square feet to Walmart
- 600 new single-family housing units

Assignment A1.05: *Optimal Signal Timing Design for Fixed-time Signals*

[NIATT Web-based Signal Design Tutorial](#)

Range of design Parameters

phasing plan*,

green splits*,

cycle length*,

pedestrian phase lengths, [ITD Design manual]

yellow time, [ITD Design manual]

all-red time. [ITD Design manual]

Use Corsim and HCS to compare different alternatives [MOEs?]

Assignment A1.05: *Optimal Signal Timing Design for Fixed-time Signals*

Review of fixed-time design fundamentals

[\[NIATT Web-based Signal Design Tutorial\]](#)

1. NEMA phasing definitions
2. Phasing plan [protected LT phase?]
3. Volume Adjustments
 - a) Heavy Vehicle factor
 - b) Unprotected LT (Through Car Equivalent Units (TCUS))
4. Critical Volumes
5. Cycle Length
6. Green Splits