

Appendix 1.
Application Package

CHECKLIST	Completed	Signed
Certificate of Health		
Letter of Confirmation		
Regulations		
Release Form		
Housing Letter		
Items and Dress Code		
PARENT ORIENTATION SESSION		

DIRECTIONS

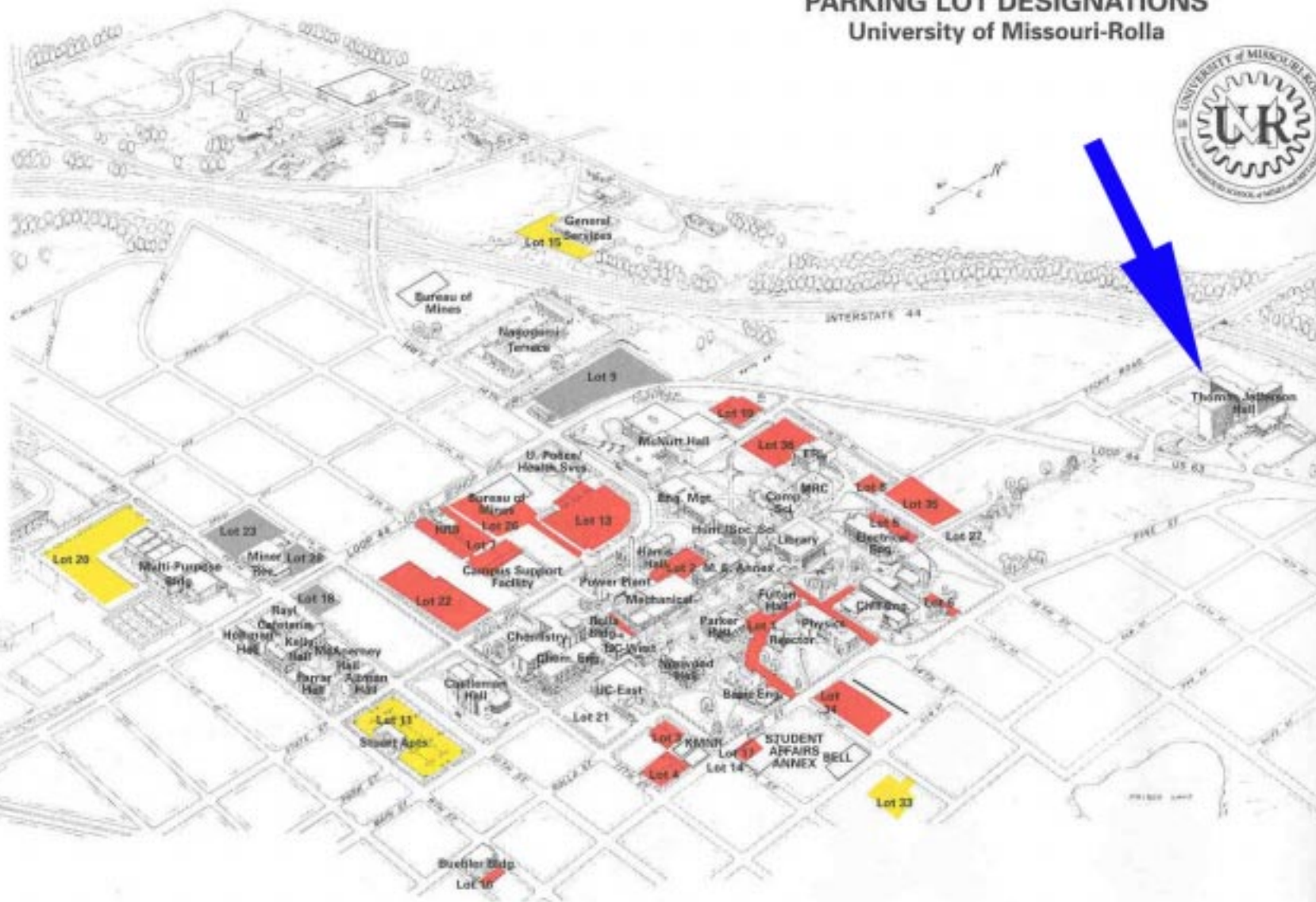
Take I-44 to Exit 186. Follow US 63 South for approximately 1 mile. TJ Dormitory is a high rise brick building (the only one in sight) and is on your right. Parking in any legal spot around the building (there are lots on the North and South sides of the building). A map is attached for your convenience.

PARKING LOT DESIGNATIONS University of Missouri-Rolla



PARKING LOT LOCATION CHART

Number	Nearest Building or Streets
Visitors Lot	
21	University Center-East
Red Lots	
1	Basic Engr./Reactor
1	Parker-Fulton Halls, Physics
2	Mech. Engr. Annex/Harris Hall
3	12th & Rolla
4	11th & Pine
5	Electrical Engineering
6	Civil Engineering
7	Campus Support Facility/HRS
8	10th & Vichy Rd.
10	Buelker Building
12	Rock Mechanics
13	McNitt Hall, State and 14th St.
13	University Police/Health Services
17	Student Affairs Annex
19	State St. and Bishop Ave.
22	11th & State Street
25	Bureau of Mines/Env. Trace Substances
34	13 & Pine St.
35	10th & Vichy Rd.
36	Eng. Research Lab
Gold Lots	
11	Castleman Hall, 10th & State St.
15	Purchasing/Physical Facilities
20	Multi-Purpose Building/Athletic Fields
33	13th & Elm St.
Silver Lots	
3	Bishop Ave. and 14 St.
18	10th & Bishop
23	Miner Recreation
28	Miner Recreation



Yearly Fee Required for Parking

Motorcycle Parking in Lots 1, 2, 4, 11, 13, 18, 19, 21, 23, 36

Meter Parking in Lots 1, 3, 11, 13, 14, 21, 27, 34, 35, 36
(Meter cards available to purchase)

For information call (573) 341-4303 or
E-mail: parking@umr.edu
To view Parking Lot regulations see:
<http://www.umr.edu/~police/parking/parking.htm>

2001 SUMMER TRANSPORTATION INSTITUTE

CERTIFICATE OF HEALTH

**This certificate is for your child's safety and welfare while on campus.
(Please Print Clearly)**

Name: _____

Address: _____

SS#: _____ Age: _____ F/M: _____

Past and Present History of Illness or Injury: _____

Does your child have a history of any of the following:

1. Disease: _____

2. Heart Disease (Mitral Valve Prolapse, Murmur): _____

3. Lung Disease (Tuberculosis, Asthma): _____

4. Neurological (Seizures, Migraine): _____

5. Mental (Nervousness): _____

6. List any past surgeries or hospitalizations: _____

7. Has he/she ever passed out? _____

8. List any lengthy illness _____

9. List any visual problems _____

10. Sinusitis: _____

11. Hearing Loss: _____

12. Anemia/Sickle Cell Disease or Trait: _____

13. Rheumatic Fever: _____

-OVER-

14. List any injury or broken bones:

Neck	_____	Elbow	_____	Back	_____
Collar bone	_____	Wrist	_____	Pelvis	_____
Ankle	_____	Shoulder	_____	Hand	_____
Arm	_____	Ribs	_____	Leg	_____

Other: _____

15. List any physical defects: _____

16. Is he/she on any medications? _____

17. List any allergies to food, medications, plants, dust, etc. _____

18. Please list any restrictions related to sports.

Running _____ Swimming _____ Other _____

19. Please list any injuries or conditions not included above.

20. Please provide your insurance carrier information.

Carrier Name: _____

Phone Number: _____

Address: _____

Member No: _____

I certify that the above information is true and that the individual named on this certificate is in good health and able to take part in all 2000 Summer Transportation Institute activities at The University of Missouri-Rolla with the exceptions that I have written in this certificate.

I also understand that no physician is available on the campus of The University of Missouri-Rolla during the summer; however, professional nurses will be available. I give permission for limited treatment for minor illnesses and/or injuries. Emergency illness will be referred to the nearest medical facility for care. The Institute provides an excess policy that will cover costs over other available coverage. However, the first \$200 will be paid for by the Institute's policy without contribution from other available insurance coverages.

Signature (Parent/Guardian) _____ Date _____

Notary _____ Date _____

**2001 SUMMER TRANSPORTATION INSTITUTE
REGULATIONS**

We are excited to have you join us for the Summer Transportation Institute. During the Institute, we are responsible for your safety and well-being at all times, in addition to your educational experiences, and therefore have established the following set of guidelines, rules and regulations:

1. Project staff expect participants to display courtesy and professional behavior toward their peers, faculty and staff, at all times.
2. Attendance at all program activities is mandatory. Only excused absences from the Project Director will be accepted. Students must report illness, injury etc., to their Residence Counselors and Project Director to be excused from classes (seminars/labs). Violations may lead to dismissal from the Program.
3. Students may not leave campus unescorted. Residence Counselors will make arrangements for shopping, day trips, etc. Any student found or reported off campus is subject to immediate dismissal.
4. Students will go home on weekends and may do so on Fridays after 4 PM and must return on Sunday by 7:00 PM. Parent's (with Director's approval) must sign students out of the dormitory when leaving campus and sign them in when they return to campus. Each student will receive a University of Missouri Rolla ID card which will allow him or her dining privileges and access to all university facilities and related programs.
5. All residence hall rules of conduct must be followed. A 9:00 p.m. curfew and an 11:30 pm bed-check are set for the residence hall. Students are free to move around inside the residence hall under the supervision of the residence hall counselor.
6. Students are completely responsible for all personal items, including cash.
7. Students with vehicles are expected to keep the vehicles parked in the parking lot during the STI. Students are responsible for their vehicles and for checking in and out of TJ as appropriate.

I have read and understand the above regulations.

Signature (Student)

Date

Signature (Parent/Guardian)

Date

2001 SUMMER TRANSPORTATION INSTITUTE

RELEASE FORM

PERMISSION TO TAPE OR PHOTOGRAPH

Student:

Date of Birth:

I grant written permission to the University of Missouri-Rolla Summer Transportation Institute to make video tapes or photographs of the above named student.

I further authorize the use of such photographs or tapes for brochures, press releases or other recruitment materials without prior inspection on my part.

Signature: _____
(Parent/Guardian)

Date: _____

Witness: _____

Date: _____

2001 SUMMER TRANSPORTATION INSTITUTE
HOUSING REGULATIONS

From the Director of Housing:

As you prepare to join us on June 24, 2001, we need to make you aware of a few things which may be of importance to you.

The residence halls provide pay phones only. No in-room phone service is provided.

Appliance(s): Refrigerators, hot plates, room heaters, and cooking appliances are prohibited.

Housing: The Institute will provide sheets, pillows, pillowcases and a daily towel service. Each dorm resident is responsible for maintaining the order and cleanliness of his/her room. Each bed is twin size.

Students will be required to turn in room keys each Friday. There is an additional \$30 charge for lost keys.

To the parents of STI enrollees: We appreciate your confidence in The University of Missouri-Rolla which is shown by entrusting your most prized possession--your children -- to us. Along with you the university can help expose your child/children to and prepare them for the work world of tomorrow.

We hope that your stay with us is pleasant, please let us know.

2001 SUMMER TRANSPORTATION INSTITUTE
PERSONAL ITEMS AND DRESS CODE

LIST OF ITEMS YOU WILL NEED:

- Laundry Detergent /Toiletries
- Extra blanket and pillows if desired
- Towels, Shower Caps
- Rain Coat (with hood)
- Comfortable Clothing
- Walking Shoes
- Sunday best clothing for the Closing Ceremonies
- Light weight Jacket
- Book Bag/Carry•All
- Calculator
- Dictionary
- Loose Leaf Paper
- Social Security Card
- Pens/Pencils/Markers
- Alarm clock
- Medication*
- Swimming Caps, Suits/Trunks
-

Dress Code:

Ladies:

Shorts (Extremely short or mini skirts are not acceptable).

T•Shirts, shirts, etc. (All tops must cover entire torso).

Gentlemen:

All trousers must fit to waistline with belts (trousers falling below waistline are not acceptable).

T•Shirts, shirts, etc. (All tops must cover entire torso).

* All medications must be accompanied by a signed letter from an attending physician explaining dosage and any instructions for Institute staff.

**2001 SUMMER TRANSPORTATION INSTITUTE
UNIVERSITY OF MISSOURI-ROLLA**

**Thomas Jefferson Dormitory
South Lounge**

Student/Parent Orientation

June 24, 2001
6:00 PM

WELCOME

Ms. Lelia Flagg

OVERVIEW OF PROGRAM

Dr. Gary Spring

INTRODUCTION OF FACULTY AND STAFF

Ms. Lelia Flagg

EXPECTATIONS OF STUDENTS

Ms. Lelia Flagg

INSTRUCTIONS TO PARENTS

- Sign in/out
- Supervision
- Telephone Calls
- Insurance
- Injuries/Sickness

DORMITORY LIFE

- Room Assignments
- Living in a dormitory
- Keys
- Money/valuables
- Clean room daily
- Washing clothing
- Roommate

TEMPORARY ID

REVIEW AND COMPLETE FORMS

REPORT TO DORMITORY



My Objectives for Tonight

- Have parents see me
- Tell students my expectations
- Describe program

Expectations

- Grab this opportunity
- Respect for others
- Have FUN!

Strategic Goals

- To increase the workforce in the transportation sector
- To increase the presence of under-represented groups in the transportation workforce

Strategic Objectives

- To provide an educational experience for rising 11th and 12th grade high school students which explores all aspects of the transportation industry and its role in society.
- To provide students with tools they need to pursue careers in transportation and positive experiences that will encourage them to do so.

The 5 week Program

- Orientation
- Highway
- Air
- Public
- Intermodal

Lectures



Labs



Labs





Field Trips



Field Trips



Development Activities



Chicago Transit Authority

3 Credit Course

- History of Film
- Transferable to any University

Appendix 2.
Student Handbook

Our Host University

University of Missouri-Rolla

The University of Missouri-Rolla (UMR), established in 1870 (as the University of Missouri School of Mines and Metallurgy), is the State of Missouri's primary technological campus. UMR was the first technological institution west of the Mississippi, and one of the first in the nation. It therefore has a long tradition as the leading center in the state for education in engineering and related sciences.

The University's mission is to educate tomorrow's leaders in engineering and science. It offers a full range of engineering and science degrees, and complementary liberal arts degrees and programs. It is a PhD-granting university with undergraduate and graduate programs in the arts and sciences, engineering, and mines and metallurgy. UMR enrolls approximately 4,700 students from 48 states and 66 foreign countries, and is one of the largest producers of civil engineers in the United States. The University has acquired a national reputation for conducting quality research and ranks in the top 100 National Universities in the country. Transportation research topics include transportation safety, intelligent transportation systems, materials and infrastructure systems.

In addition, UMR has been selected under TEA-21 as one of the 23 University Transportation Centers: the Center for Infrastructure Engineering Studies. The theme of this center is to address national needs in the areas of transportation infrastructure focussing on advanced materials and non-destructive testing (NDT) technologies.

The Transportation Curricula at UMR

The School of Engineering offers both undergraduate and graduate degrees in Civil Engineering with the transportation option. The School is accredited by the Accreditation Board for Engineering and Technology.

Other Selected Transportation Programs, Activities and Memberships

- The Transportation Institute, housed within the Civil Engineering Department
- The Center for Infrastructure Engineering Studies, sponsored by the USDOT
- MOTREC - Missouri's Transportation Research and Education Consortium, sponsored by Missouri Department of Transportation and the University of Missouri system
- Member of the Transportation Research Board
- Member of the Council of University Transportation Centers

2001 SUMMER HIGH SCHOOL TRANSPORTATION INSTITUTE

OBJECTIVES

The Summer High School Transportation Institute (High School Institute) is a unique concept that creates an awareness of the attractive career choices and opportunities existing within the transportation industry. Analysts predict that by the 21st century, the transportation industry will experience a shortage in qualified professionals. As a result the U.S. Department of Transportation, state and local transportation agencies, and the University's Transportation Institute have placed a priority on the recruitment of the "best and brightest" young people to form the nucleus of the transportation workforce for the next century. As this country and the entire world become increasingly mobile and interactive, highly trained and broad-minded young professionals become essential. The High School Institute was developed to help respond to that anticipated human resource need. Specifically, the Institute is an attempt to provide high school students with:

- basic information on the significance of the transportation industry;
- awareness of career opportunities in public and private sectors of transportation;
- exposure to all spheres of transportation, including passenger automobiles, buses, vans, trains, ships, and planes, as well as freight carrier trucking, rail, shipping, airlines, and pipelines; and
- understanding of engineering and business options available in transportation education at the university level.

See the attached Strategic Plan for details.

ELIGIBILITY

To be eligible to attend the Institute, the applicant must have achieved rising freshman or sophomore status in high school with a minimum grade point average (GPA) of 2.5 on a 4.0 scale.

QUALIFICATIONS

Participants are selected for the High School Institute based on their academic achievement, expression of interest in transportation as a possible career choice,

and written recommendations from the student's high school counselor and at least one instructor.

SITE

The Institute is headquartered in the Civil Engineering Department on the UMR campus. The 2001 High School Institute is residential, Sunday through Friday. Students must have transportation available to and from Campus on Sundays and Fridays. During the course of the High School Institute, several field trips will be conducted to a variety of transportation locations. Transportation will be provided for these trips.

INSTITUTE ACTIVITIES

Students will be introduced to theoretical and practical aspects transportation. Transportation education is increasingly interdisciplinary in its orientation. Therefore, students will be exposed to transportation-related disciplines such as engineering, economics, marketing, computer science, and public policy.

In order to provide students with the broadest understanding, a variety of educational activities will be used, including:

- lectures and presentations
- case studies
- group projects
- campus tours
- cultural and social awareness activities
- field trips

BENEFITS TO PARTICIPANTS

The Institute provides high school students with opportunities to interact with transportation professionals, and to discuss theory and practice in a classroom setting. It fosters diversity in educational and career opportunities in transportation by providing students with skills that will enable them to make knowledgeable decisions concerning transportation as a major.

Upon successful completion of the High School Institute, participants will be awarded certificates acknowledging their participation.

THE HANDBOOK

GENERAL GUIDELINES AND EXPECTATIONS

It is our hope that this Institute will be a very rewarding experience for our participants as well as the staff. We regard this as an excellent educational experience with room for some fun as well as social events. These guidelines list our expectations of you as participants and the role of the staff in this program.

PROGRAM CONTENT

The activities will include: (1) lectures and presentations; (2) case studies; (3) group projects, (4) campus tours (library, computer facility, etc.); (5) extracurricular activities designed to increase the student's cultural and social awareness; and (7) field trips to transportation carriers, construction sites, and government facilities.

COMMUTING

Program participants are responsible for their own transportation to and from the University weekly. Transportation for field trips will be provided by the Institute. Program participants will be responsible for obeying traffic and parking rules and regulations.

HOUSING

Students will be housed in UMR's Thomas Jefferson Dormitory. TJ, as it is known, is administered by a professional live-in residence director and is staffed by paraprofessional students called residence assistants (RA's). All rooms are furnished with two beds, closets, desks, chairs, bookshelves and study lamps. Students have the option of bringing personal items to give their room an individual touch. Each floor has its own bathroom, study room and TV lounge. Other facilities in TJ include laundry facilities, computer resource centers, fitness rooms, meeting areas, game rooms, vending machines and convenience stores.

Since this is a weekday-only residence program, students will move in on Sunday evenings and must move out on Fridays after breakfast. All personal items must may be left in the dorm rooms over the weekends.

MEALS

All meals will be provided. Program participants must use ID cards in order to eat in the TJ Cafeteria. If these cards are lost or stolen, there will be a replacement fee.

LIBRARY

Program participants are encouraged to use the Curtis Laws Wilson Library. Student IDs will be necessary in order to check out materials. Library hours are 8:00 AM to Midnight everyday.

STAFF

We have selected staff to ensure the success of this program, both academically and socially. These individuals were selected for their experience, their academic expertise, and their level of commitment. Our staff will be available to mentor as well as guide the participants through the adjustments to campus life throughout the summer. In addition, transportation professionals from the University, industry, state and federal government agencies will interact with the participants throughout the summer.

Summer High School Transportation Institute 1999 Staff are listed below. Other staff for the University and sponsoring agencies can be found in the Directory.

Director: Gary S. Spring
Office: 341-6286; Home: 368-9288
Cell: 368-9480

Administrative Coordinators: Lelia Flagg
Beth Morgan (will live in dorms)
Susan Turner

Program Assistants: Tarik Clark
George Daniels
Houda Jadi
Amanda Withers (Mandy)

GENERAL SAFETY

Even though the University has made every attempt to make the campus a safe place, there are still some responsibilities that students must take upon themselves to ensure their own personal safety. Please adhere to the following guidelines:

- To protect your valuables, always lock your room when it is unoccupied, even if you are only gone for a few minutes.
- Academic Coordinators (Program Assistants in the evenings) are to know your whereabouts at all times. Do not go off alone without letting someone know where you are. Under no circumstances should you leave campus, except for planned, off-campus activities.
- Do not talk to strangers or give them information. It is not a guarantee that persons who approach you on campus will be University students or personnel.

KEY GUIDELINES FOR ALL PARTICIPANTS

1. Must participate in all Transportation Institute academic activities (seminars, lectures, field trips, projects).
2. Must arrive on time for all functions.
3. Must complete all assignments.
4. Must report any illnesses or emergencies to the designated Academic Coordinator.
5. Must report any unresolved conflicts to the designated Academic Coordinator.
6. Must refrain from adverse behavior.
7. Must follow University guidelines.

**FAILURE TO COMPLY WITH THE ABOVE GUIDELINES
WILL RESULT IN DISMISSAL FROM THE PROGRAM!**

ILLNESS

Notify your Academic Coordinator concerning all illnesses. From there, you will be referred for the appropriate treatment, and, if necessary, the Academic Coordinator will arrange for you to be taken to a local medical facility by the University Police.

COMMUNICATION

The participant must have a long distance calling card in order to make long distance calls. In case of emergency, parents/guardians may contact the students by calling the Civil Engineering Department or the Campus Police.

Civil Engineering 573-341-4400
Campus Police 573-341-4300

ILLEGAL ACTIVITIES

1. In Missouri it is illegal for persons under the age of 21 to buy, drink or have alcoholic beverages in their possession.
2. It is illegal to buy, sell, use or possess any type of illicit drug, such as marijuana, cocaine, crack, etc.
3. University policy makes it illegal to have firearms on University property.
4. Calling in a false alarm (911) to the police or fire department is illegal. It is also illegal to set off the fire alarm in University buildings when there is no fire.

END OF INSTITUTE PROCEDURES

On the final day of the Transportation Institute Program, all students are to go through an official check-out with their Academic Coordinator.

- Do not leave any items in the classroom.
- All books, property and material belonging to the Transportation Institute must be returned to the Institute.
- All books and materials which are the property of the University library must be returned to the Library.
- All assignments and evaluations must be completed.

NOTE: The above procedures are also to be followed if you leave the Transportation Institute before the last day of the program.

Appendix 3.
Curriculum Description

**2001 USDOT STI
Curriculum At-A-Glance**

	Sunday 24-Jun	Monday 25-Jun	Tuesday 26-Jun	Wednesday 27-Jun	Thursday 28-Jun	Friday 29-Jun
PROGRAM ORIENTATION WEEK						
9:00 AM		Orientation	Leadership Seminar	Bridge Project-TRAC Bridge Project - (TRAC) Bridge Project-TRAC	Introduction to 7 Habits of Highly Effective People	Writing Newsletters Seminar
10:00 AM		Admissions, Financial Aid	Using the Library			
11:00 AM		Student Ids	Using the Library			
12:00 PM		Lunch	Lunch	Lunch on the road	Lunch	Lunch
1:00 PM		Tour of Rolla Campus	Literature Class	Surveying Lab Surveying Lab	Literature Class Literature Class	Newsletter Planning Highway Week
2:00 PM		Intro to Minority Engineering	Literature Class			
3:00 PM	Students check in	Intro to Minority Engineering	The UMR Computer Net	Surveying Lab	Transportation as a Profession	Picnic in the park
4:00 PM	Opening Ceremony	Free Time	The UMR Computer Net	Surveying Lab		
5:00 PM	Dinner on your own	Dinner	Dinner	Dinner	Dinner	Depart - parents pick up
6:00 PM		Evening Activity	Evening Activity	Literature Class	Evening Activity	

	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul	
HIGHWAY WEEK							
8:00 AM							
9:00 AM		Intro to Hwy Engineering	Introduction to Math Modeling	HOLIDAY	Hwy. Constr. Project Hwy. Constr. Project Hwy. Constr. Project	Complete Highway Newsletter	
10:00 AM		Intro to Hwy Engineering	Introduction to Math Modeling				
11:00 AM		Intro to Hwy Engineering	Introduction to ITS				
12:00 PM		Lunch on the road	Lunch		Lunch on the road	Lunch	
1:00 PM		FHWA	Literature Class		Literature Class	Tour Const. Mat. Lab	
2:00 PM		MODOT	Literature Class		Literature Class	Tour Structures Lab	
3:00 PM		MODOT	Crash Cushion Design		Habits exercises	Tour Environmental Lab	
4:00 PM		Travel	Crash Cushion Design		Habits exercises	Depart - parents pick up	
5:00 PM		Pool side barbeque	Crash Cushion Design		Dinner		
6:00 PM	Students check in	Pool side barbeque			Students check in	Literature Class	
7:00 PM							

	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul
AIR TRANSPORTATION WEEK						
8:00 AM			Travel - 7:30 am to 9:30 am	Travel - 7:15 am to 9:00 am	Travel - 7:15 am to 9:00 am	
9:00 AM		Intro. to air transpo.	Springfield TOC	Tour of Boeing Prologue Room	Tour Air Traffic Control	Complete Newsletter
10:00 AM		Intro. to air transpo.	Springfield TOC		Tour Approach Control	
11:00 AM		Intro. to air transpo.	Travel		Travel	
12:00 PM		Lunch on the road	Lunch on the road	Burns & McDonnell and Lunch	Lunch on the Road	Lunch
1:00 PM			Literature Class	Tour TWA Training Center	Literature Class	Wrap up and exercises
2:00 PM		Lincoln				
3:00 PM			Newsletter Planning		Habits exercises	Open Discussion
4:00 PM		Free Time	Public Transportation	Travel	Habits exercises	
5:00 PM		Dinner	Dinner	Dinner	Dinner	
6:00 PM	Students check in	Evening Activity	Evening Activity	Literature Class	Evening Activity	

	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
PUBLIC TRANSPORTATION WEEK						
8:00 AM				Travel	Travel - 7:15 am to 9:00 am	Chicago tours
9:00 AM				Travel	Bi-State Operations Center (including MetroLink)	
10:00 AM		Introduction to public transportation	MAGLEV Workshop	Sverdrup	Civitas Presentation Lunch on the road	
11:00 AM				Sverdrup		
12:00 PM		Lunch	Lunch	Lunch at Sverdrup	Lunch on the road	
1:00 PM			Literature Class	Page Ave Extension	Travel to Chicago	
2:00 PM		Newsletter Planning public Transportation		Field trip to Alton Dam	Travel to Chicago	
3:00 PM		Free Time	Free Time	Travel	Travel to Chicago	
4:00 PM		Free Time		Travel	Travel to Chicago	
5:00 PM		Dinner	Dinner	Dinner	Dinner	
6:00 PM	Students check in	Evening Activity	Evening Activity	Literature Class		

	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
INTERMODAL TRANSPORTATION WEEK						
8:00 AM				Travel	Travel (7:30 to 9:00)	Prepare to depart
9:00 AM		Intro to Intermodal Transpo	Complete Public Transpo Newsletter		Lincoln	
10:00 AM		Intro to Intermodal Transpo		Meeting with CFI	Lunch on the road	Closing Ceremonies
11:00 AM		Travel				
12:00 PM		Lunch on the road	Lunch		Literature Class	
1:00 PM			Literature Class			
2:00 PM		Free Time	Free time		Close out evaluations	
3:00 PM				Travel (3:30 to 5:30)		
4:00 PM				Dinner	Dinner	
5:00 PM		Dinner				
6:00 PM	Students check in	Evening Activity	Evening Activity	Literature Class		



Summer Transportation Institute 2001

PROGRAM

Prepared by:

The Transportation Institute
Department of Civil Engineering
University of Missouri-Rolla



ORIENTATION WEEK

Events for Sunday, June 24

4:00 pm - 5 pm, TJ Hall

Opening Ceremonies

Ms. Lelia Flagg presiding

Student Check-in thereafter

Student Evening Activity – “Get Acquainted” - Dwayne Bogle

Events for Monday, June 25

8:00 am - 8:45 am, TJ Cafeteria

Breakfast

9:00 am - 10:00 am, Missouri Room, UC East

Introductions and pre-test

Overview of Program

Expectations

Ms. Lelia Flagg

10:00 am - 11:00 am, Missouri Room, UC East

Admissions Office and Financial Aid Office

11:15 am - 12:00 pm, Missouri Room, UC East

Student IDs

12:00 pm - 12:45 pm, TJ Cafeteria

Lunch

12:45 pm - 1:45 pm,

Tour of UMR Campus

Student Ambassadors

2:00 pm - 4:00 pm, Missouri Room, UC East

David Carter - Minority Engineering Program

5:00 pm - 6:00 pm, TJ Cafeteria

Dinner

6:00 pm - 8 pm

Evening Activity

ORIENTATION WEEK

Events for Tuesday, June 26

8:00 am - 8:45 am, TJ Cafeteria
Breakfast

9:00 am - 10:00 am, Missouri Room, UC East
Leadership Seminar
Ms. Lelia Flagg

10:15 am - 11:45 am, Library
Using UMR's Library
Ms. Laurenda Blau, Librarian

12:00 pm - 12:45 pm, TJ Cafeteria
Lunch

1:00 pm - 3:00 pm, Missouri Room, UC East
History of Film
Dr. Larry Vonalt

3:15 pm - 5:00 pm, Butler-Carlton, Room 120
The UMR Computer Network
Mr. James Tharp, Helpdesk training coordinator

5:00 pm - 6:00 pm, TJ Cafeteria
Dinner

6:00 pm - 8 pm
Evening Activity-Homework/Reading

ORIENTATION WEEK

Events for Wednesday, June 27

8:00 am - 8:45 am, TJ Cafeteria
Breakfast

9:00 am - 11:45 am, Butler-Carlton, Room 120
Bridge Design Lab
Mr. Will Walker, MoDOT, Structural Engineer

12:00 pm - 12:45 pm, TJ Cafeteria
Lunch

1:00 pm - 4:30 pm, Missouri Room, UC East
Surveying Lab
Ms. Laura Ellen, MoDOT, Design Engineer

5:00 pm - 6:00 pm, TJ Cafeteria
Dinner

6:00 pm - 9 pm, Missouri Room, UC East
History of Film
Dr. Larry Vonalt

ORIENTATION WEEK

Events for Thursday, June 28

8:00 am - 8:45 am, TJ Cafeteria
Breakfast

9:00 am - 11:45 am, Missouri Room, UC East
Seven Habits of Highly Effective People
Dr. Gary Spring

12:00 pm - 12:45 pm, TJ Cafeteria
Lunch

1:00 pm - 3:00 pm, Missouri Room, UC East
History of Film
Dr. Larry Vonalt

3:15 pm - 5:00 pm, Missouri Room, UC East
Transportation as a Profession
Mr. Scott Nall

5:00 pm - 6:00 pm, TJ Cafeteria
Dinner

6:00 pm - 8 pm
Evening Activity

ORIENTATION WEEK

Events for Friday, June 29

8:00 am - 8:45 am, TJ Cafeteria
Breakfast

9:00 am - 11:45 am, Campus Support Facility, Computer Lab
Newsletter Seminar
Ms. Rebecca Frisbee, Manager UMR publications, presiding

12:00 pm - 12:45 pm, TJ Cafeteria
Lunch

1:00 pm - 3:00 pm, Missouri Room, UC East
Newsletter Planning, Highway Week

3:15 pm to 5:00 pm, Schuman Park
STI Annual Barbeque
Parents welcome!

Highway Week

Events for Monday, July 2

8:00 am - 8:45 am, TJ Cafeteria
Breakfast

9:00 am - 11:30 am, Missouri Room, UC East
Introduction to Highway Engineering
Dave Diestelkamp, Office Manager of Transportation, Sverdrup Corp.,

11:45 am - 1 pm, On the road
Lunch

1:00 pm - 1:45 pm, Federal Highway Administration
Overview of FHWA
Mr. Allen Masuda, Missouri Division Administrator

2:00 pm - 4:00 pm, Missouri Department of Transportation
Tour of MoDOT Laboratories

4:00 pm - 5:30 pm, On the road

5:30 pm - 6:30 pm, TJ Pool
Poolside Cookout

Homework due this week

Read

- *Midsummer Nights Dream*, Acts 3, 4, & 5.
- Introduction on pages 1xiii-1xxvi of *Midsummer Night's Dream*

Turn in Paper on the Brooklyn Bridge

Important Events for Next Week

July 10 – Last day to change grade option for ENGL 177 - Literature & Film

Read pages 1-266 from *Butterfly Weed*

Study for Quizzes

Highway Week

Events for Tuesday, July 3

8:00 am - 8:45 am, TJ Cafeteria
Breakfast

9:00 am - 11:30 am, Missouri Room, UC East
Introduction to Math Modeling
Dr. Gary S. Spring

12:00 pm - 12:45 pm, TJ Cafeteria
Lunch

1:00 pm - 3:00 pm, Missouri Room, UC East
ENGL 177 - Literature & Film
Dr. Larry Vonalt

3:15 pm - 4:30 pm, Missouri Room, UC East
Crash Cushion Design Contest
Dr Gary S. Spring

Depart for July 4th Holiday

Homework due Today

Read

- *Midsummer Nights Dream*, Acts 3, 4, & 5.
- Introduction on pages 1xiii-1xxvi of *Midsummer Night's Dream*

Events for Wednesday, July 4

July 4: 6:00 p.m.
Student Check-in

Highway Week

Events for Thursday, July 5

7:30 am - 8:00 am, TJ Cafeteria
Breakfast

8:00 am - 9:00 am, On the road

9:00 am - 11:30 am, Tour of Highway Construction Project

11:00 am - 11:45 am, On the road

11:45 am – 12:45 am, Lunch

1:00 pm - 3:00 pm, Missouri Room, UC East
ENGL 177 - Literature & Film
Dr. Larry Vonalt

3:15 pm - 5:00 pm, Missouri Room, UC East
Habits Exercises
Dr. Gary S. Spring

5:30 pm - 6:30 pm, TJ Cafeteria
Dinner

6:30 pm - 8 pm
ENGL 177 - Literature & Film

Homework due Today

Turn in Paper on the Brooklyn Bridge

Highway Week

Events for Friday, July 6

8:00 am - 8:45 am, TJ Cafeteria
Breakfast

9:00 am - 11:30 am, Butler-Carlton Computer Lab
Highway Newsletter
Ms. Houda Jadi

12:00 pm - 12:45 pm, TJ Cafeteria
Lunch

1:00 pm - 3:00 pm, Butler-Carlton and Engineering Research Center
Tour of Construction Materials Lab - Mr. Mike Lusher
Tour of Structures Lab - Mr. Sutton Stephens
Tour of Environmental Lab - Ms. Amanda Withers

3:15 pm - 5 pm, TJ
Free time

Depart

Highway Week

Events for Monday, July 9

8:00 am - 8:45 am, TJ Cafeteria
Breakfast

9:00 am- 11:00 am, Missouri Room, UC East
Introduction to Air Transportation
Mr. Steve Stockam, Director, Joplin Regional Airport
Ms. Stephanie Webb, Federal Aviation Administration

11:15 am - 11:45 pm, Lunch at TJ

11:45 am - 1:15 pm, Travel to Lincoln University

1:15 pm - 4:00 pm, Lincoln University
Introduction to the Business side of transportation
Ms. Sherrie Koechling-Andrae
Mr. Ty Westergard

4:00 pm – 5:30 pm travel to TJ, pick up box dinner, travel to Ropes Course

5:30 pm - 8:30 pm, Universal Challenge Ropes Course
(Eat box lunch during briefing)

Important Items for this week

Bring Money for lunch on Tuesday
Bring in forms for Ropes Course
File form to change status in English 177

Homework Due This Week

Quizzes on Tuesday and Thursday!!!!
Mission Statement
Internet Egg Hunt

Due Today

Dr. Spring's Assignment

Highway Week

Events for Tuesday, July 10

7:00 am - 7:30 am, TJ Cafeteria
Breakfast

7:30 am- 9:30 am, Travel

9:30 am - 11:00 am, Springfield Traffic Operations Center

11:00 am - 1:00 pm, Lunch on the road (**Buy Your Own Lunch!!**)

1:00 pm - 3:00 pm, Literature Class

3:00 pm - 5:00 pm, Missouri Room, UC East
Newsletter Planning Air Transportation

5:30 pm - 6:30 pm, TJ Cafeteria
Dinner

Due Today

Quiz on *Butterfly Weed* up to page 135

Form to change to hearer status for English 177

Highway Week

Events for Wednesday, July 11

7:30 am - 8:00 am, TJ Cafeteria
Breakfast

8:00 am- 9:45 am, Travel

10:00 am - 11:00 am, Prologue Room Tour at Boeing

11:00 am - 12:30 pm, Burns and McDonnell
Lunch and presentations

12:30 pm - 1:00 pm, travel to TWA Center

1:00 pm - 3:00 pm, TWA Training Center Tour

3:00 pm - 5:00 pm, Travel

5:00 pm - 6:00 pm, TJ Cafeteria
Dinner

6:00 pm – 9:00 pm, English 177
(view and discuss *Sunset Boulevard*)

Highway Week

Events for Thursday, July 12

7:00 am - 7:30 am, TJ Cafeteria
Breakfast

7:30 am- 9:00 am, Travel

9:00 am - 10:00 am, Lambert Airport, Air Traffic Control
Tour of Control Tower

10:00 am - 11:00 am Lambert Airport, Approach Control
Tour of Radar facility

11:00 am - 1:00 pm, Lunch on the road

1:00 pm - 3:00 pm, Literature Class

3:00 pm - 5:00 pm, Habits Exercises
Missouri Room, UC East

5:30 pm - 6:30 pm, TJ Cafeteria
Dinner

Due Today

Quiz on *Butterfly Weed*, pages 135 - 266

Highway Week

Events for Friday, July 13

8:00 am - 8:30 am, TJ Cafeteria
Breakfast

9:00 am- 11:45 am, Civil Engineering Computer Lab
Complete Air Transportation Newsletter

11:00 am - 12:30 pm, TJ Cafeteria
Lunch

1:00 pm - 2:00 pm, Wrap Up
Missouri Room, UC East

2:00 pm - 4:00 pm, Work on Exercises

Depart

Due Today

Mission Statement

Internet Egg Hunt

PUBLIC TRANSPORTATION WEEK

Events for Monday, July 16

8:00 am - 8:30 am, TJ Cafeteria
Breakfast

9:00 am- 11:30 am, Missouri Room, 220 Butler Carlton
Introduction to Public Transportation
Mr. Mel Sundemeyer, Director Multimodal Division, MoDOT
Ms. Cindy Crossland, Bi-State Development

12:00 am - 12:30 pm, TJ Cafeteria
Lunch

1:00 pm - 4:00 pm, Missouri Room, 220 Butler Carlton
Newsletter planning for Public Transportation

5:00 pm - 5:30 pm, TJ Cafeteria
Dinner

Homework Due

Paper due Tuesday on *Midsummer*

Things to Bring for Chicago

Money for meals and other activities

Reading material for the Bus?

Games for the bus?

Movies for the bus?

PUBLIC TRANSPORTATION WEEK

Events for Tuesday, July 17

8:00 am - 8:30 am, TJ Cafeteria
Breakfast

9:00 am - 12:00 pm, Missouri Room, 220 Butler Carlton
MAGLEV Workshop - TRAC

12:00 pm - 12:45 pm, TJ Cafeteria
Lunch

1:00 pm - 3:00 pm, Literature Class

3:00 pm - 5:00 pm, Open time

5:30 pm - 6:30 pm, TJ Cafeteria
Dinner

6:00 pm – 9 :00 pm, Literature class, view *Bowfinger*

PUBLIC TRANSPORTATION WEEK

Events for Wednesday, July 18

7:15 am –7:45 am, Breakfast at TJ

7:45 am, Load up the bus!

8:00 am- 9:45 am, Travel to Sverdrup Offices
13723 Riverport Drive
Maryland Heights

10:00 am - 3:00 pm, Sverdrup
Morning activities including tour of facilities
Lunch
Tour of Page Avenue Extension

3:00 pm - 5:00 pm, Travel to Washington University Dorms

Contact Information

Dr. Qureshi's cell phone: 714-514-2021

Washington University Dorm: Mr. Tim Lempfert, 314-935-5832

PUBLIC TRANSPORTATION WEEK

Events for Thursday, July 19

8:15 am – 9:00 am, leave Washington Univ. Dorms. Travel to Bi-State Operations Center

9:00 am - 11:00 am, Bi-State Operations Center

11:00 am- 11:30 am, Travel to Civitas Associates
232 No. Kingshighway, #2101
St Louis, MO

11:30 am - 1:00 pm Civitas, Chase-Park Plaza on Kingshighway

1:00 pm, meet bus at Lambert Airport

1:00 pm - 8:30 pm, Travel to Chicago (Dinner on the Road)

9:00 pm Check into Chicago State dorms
Entrance is located at 95th & St. Lawrence
Drop kids off at Dorm
Park Bus in Lot A3

Contact Information

Dr. Qureshi's cell phone: 714-514-2021

Dr. Spring's cell phone: 573-368-9480

Chicago State University: Ms. Dee Foster, 773-995-3676

PUBLIC TRANSPORTATION WEEK

Events for Friday, July 20

7:45 am - 8:30 am Bus departs from Chicago State to downtown Chicago

8:30 am - 9:00 am Regional Transportation Authority (RTA) Headquarters,
181 West Madison, Suite 1900 (SE corner of Madison/Wells)

Orientation (15 minutes) - Mark Pitstick and/or John Allen

Travel Information Center Tour (15 minutes) - David Ladner or
Rochelle Fulton

9:00 am - 9:30 am Metra Ogilvie Transportation Center (OTC) (bounded by
Madison, Randolph, Clinton and Canal Streets)

Walk 4 blocks to Station with detour to CTA elevated station

Tour Station (15 minutes) - Mark Pitstick and/or John Allen

9:30 am - 10:00 am Travel from OTC to CTA Control Center

10:00 am - 11:00 am Chicago Transit Authority (CTA) Control Center Tour,
120 North Racine Avenue (1 mile west of OTC), Contact: Daryl Fox (312) 432-
8009

Video (15 minutes)

Questions and Answers (15 minutes)

Observation Deck (15-30 minutes)

11:00 am - 11:30 am Travel to Manny's Cafeteria/Deli, Halsted Street at
Roosevelt Road (just south of UIC campus)

11:30 am - 1:00 pm Lunch at Manny's Cafeteria/Deli

1:00 pm - 2:00 pm Travel from Manny's to BNSF Corwith Yard via UIC
Campus. Travel through campus for brief bus tour.

1:30 pm - 4:00 pm Burlington Northern/Santa Fe (BNSF) Corwith Yard Tour -
the biggest (in terms of no. of lifts and containers handled) terminal in the
Chicago area, and probably one of the largest in the nation (Approximately 7
miles SW of UIC). Contact is Paul Nowicki

4:00 pm Dinner, Travel to White Sox Game

PUBLIC TRANSPORTATION WEEK

Events for Saturday, July 21

9:00 am- 2:30 pm, Museum of Science and Industry

3:00 pm – 9:00 pm, Sightseeing To Be Determined

Important Reminder

STI Students will be allowed to break up into small groups for sightseeing purposes IF AND ONLY IF accompanied by a chaperone.

STI students may visit friends and family IF AND ONLY IF they have a signed letter from their parents.

PUBLIC TRANSPORTATION WEEK

Events for Sunday, July 22

8:30 am Bus leaves for Rolla

Events for Monday, July 23

8:00 am - 8:30 am, TJ Cafeteria
Breakfast

9:00 am- 11:30 am, 220 Butler Carlton
Introduction to Intermodal Transportation

Mr. Jeff Quillen, Manager, FedEx Rolla Office

Mr. Nick Nichols, Operations Manager, City of St. Louis Port Authority

Ms. Sherrie Straus, MoDOT Port Operations

11:30 am - 1:00 pm, TJ Cafeteria
Lunch

1:00 pm – 3:00 pm, 220 Butler Carlton
Yearbook Planning Session

5:30 pm - 6:00 pm, TJ Cafeteria
Dinner

6:00 pm – 9:00 pm, 114 CSF
English 177

PUBLIC TRANSPORTATION WEEK

Events for Tuesday, July 24

8:00 am - 8:30 am, TJ Cafeteria
Breakfast

9:00 am - 12:00 pm, CSF Center Computer Lab
Complete Public Transportation Newsletter

12:00 pm - 12:45 pm, TJ Cafeteria
Lunch

1:00 pm - 3:00 pm, Literature Class

3:00 pm - 5:00 pm, 220 Butler Carlton
Study time

5:30 pm - 6:30 pm, TJ Cafeteria
Dinner

PUBLIC TRANSPORTATION WEEK

Events for Wednesday, July 25

7:00 am - 7:30 am, TJ Cafeteria
Breakfast

7:30 am- 9:45 am, Travel to Joplin MO

10:00 am - 3:00 pm, CFI
Introduction by Herbert Schmidt, President CFI
Lunch
Tour of Facilities

3:00 pm - 5:30 pm, Travel

5:30 pm - 6:30 pm, TJ Cafeteria
Dinner

PUBLIC TRANSPORTATION WEEK

Events for Thursday, July 26

7:00 am - 7:30 am, TJ Cafeteria
Breakfast

7:30 am- 9:00 am, Travel

9:00 am - 11:00 am, Lincoln University

11:00 am - 12:30 pm Lunch on Road

1:00 pm - 3:00 pm, Literature Class

3:00 pm – 5:00 pm, 220 Butler Carlton Hall
Complete Post test; open discussion of program

PUBLIC TRANSPORTATION WEEK

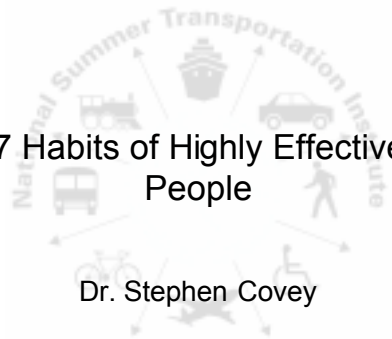
Events for Friday, July 27

8:00 am - 8:30 am, TJ Cafeteria
Breakfast

9:00 am- 11:45 am, TJ Dormitory
Prepare to depart

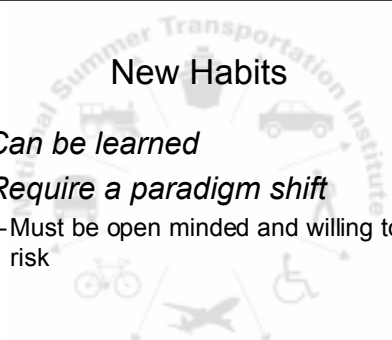
12:00 am - 2:00 pm, Missouri Room, University Center East
Closing luncheon

Appendix 4.
Course MaterialS



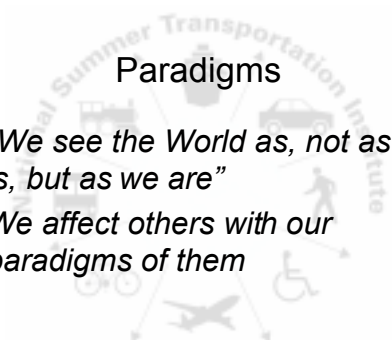
7 Habits of Highly Effective People

Dr. Stephen Covey



New Habits

- *Can be learned*
- *Require a paradigm shift*
 - Must be open minded and willing to risk



Paradigms

- *“We see the World as, not as it is, but as we are”*
- *We affect others with our paradigms of them*

Habits Exercise 1
Group
The Verna Case Study-
take 10 minutes

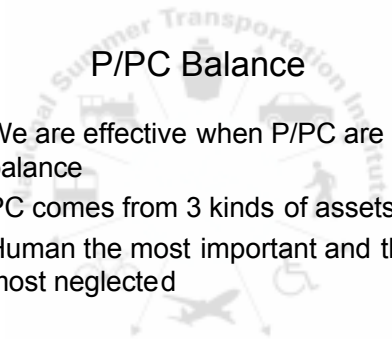
Exercise 2
Individual
A personal relationship
take 10 more minutes

Effectiveness

- Production - getting results
- Production capability - preserving and enhancing our assets
- Emotional bank account - need for others

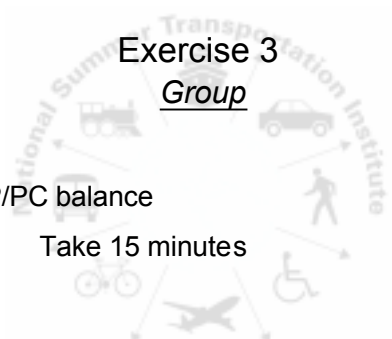
P/PC Balance

- We are effective when P/PC are in balance
- PC comes from 3 kinds of assets
- Human the most important and the most neglected



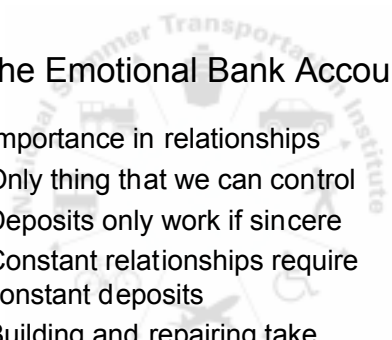
Exercise 3
Group

P/PC balance
Take 15 minutes



The Emotional Bank Account

- Importance in relationships
- Only thing that we can control
- Deposits only work if sincere
- Constant relationships require constant deposits
- Building and repairing take patience



Deposits

- Increase trust in the relationship:
 - Keeping promises
 - Being loyal
 - Apologizing when appropriate
 - Clarifying and honoring expectations
 - Having integrity

Withdrawals

- Decrease trust in the relationship:
 - Unkindness
 - Criticism
 - Broken promises
 - disloyalty

Exercise 4
Individual

Emotional Bank Account

Take 15 minutes

Basic Needs

- To Live
- To Love
- To Learn
- To leave a Legacy

The 7 Habits

Maturity continuum

Independence

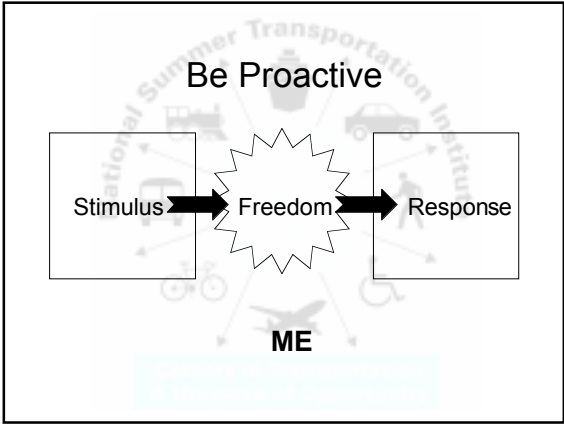
Interdependence

- Be proactive
- Begin with the end in mind
- Put first things first
- Think win-win
- Seek first to understand
- Synergize
- Sharpen the saw

Be Proactive

Stimulus → Response

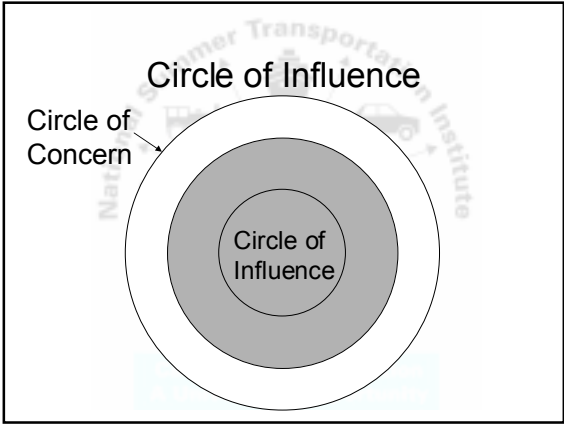
My Cat



- Be Proactive**
- The power, freedom and ability to choose responses to whatever happens to us
 - Based on values
 - Produces results - not excuses or explanations.
 - Energies focus on circle of influence

Exercise 5
Group

Your New Year's resolution
Take 10 minutes



Exercise 6
Group

Case Study - your extra assignment

Take 15 minutes

Proactive example

- I shall not submit to injustice from anyone
- I shall conquer untruth by truth
- And resisting untruth, I shall put up with all suffering

Begin with the end in Mind

- All things are created twice: first mentally then physically
- Define values to guide proactivity
- Roles and goals
- Mission statements

Mission Statements

- What do I want from my life?
- What do I value?
- What are my talents?
- At the end of my life, what do I want to have accomplished?

Mission Statements

- Encourages you to think deeply about your life
- Values become part of your software
- Connecting mission with daily activities leads to integrity

Sample Statement

- My overall goal is to make a significant difference in and impact on my students. To have them remember me with fondness and gratitude for the value I gave them. To do this I will strive to build student trust, have empathy for them, and serve as mentor where appropriate and desired.

Exercise 7 *Individual*

Complete the 6 steps shown.

-Take 15 minutes

For homework, draft a personal mission statement that follows from them.

Put First Things First

- Habit 2 sees that we do the “right” thing
- This habit sees that we do the thing “right”
- Demands may be defined by their urgency and importance

Time Management Matrix

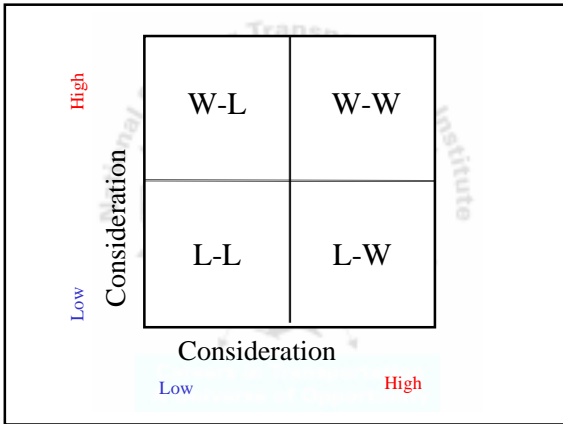
		Urgent	Not Urgent
Important	I	<ul style="list-style-type: none"> • Crises • Pressing problems • Deadlines, meetings, etc. 	II
Not Important	III	<ul style="list-style-type: none"> • Interruptions • Some phone calls • Some meetings • Some mail 	IV

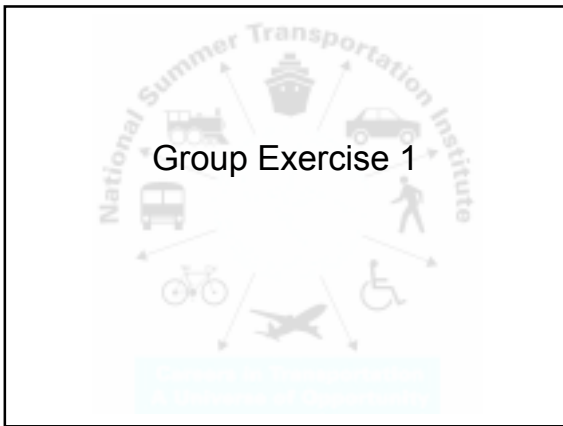
Think Win-Win

- Abundance mentality
- Win-win or no deal
- Successful relationships built on
- Example

Think Win-Win

- Courage to express your opinions
- Consideration of others' feelings





Group Exercise 1

Seek First to Understand

- Facilitates discussions
- Must be willing to be influenced
- Non-threatening
- Gain influence in the relationship
- Doctors do it, Lawyers do it, sales people do it - all to increase their effectiveness and influence

Stages in Empathic Listening

- Mimic the content - no feelings, only words
- Rephrase content. Own words
- Reflect feelings.
- Rephrase content and reflect feelings
- Should not be used as a weapon

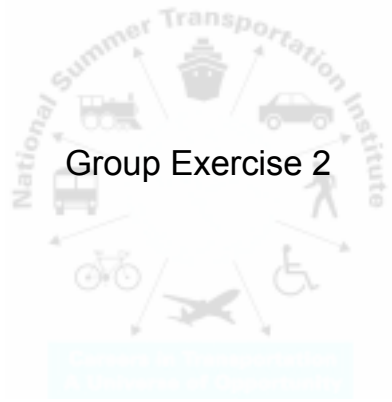
Understanding is not the same as agreeing!

The five levels of listening

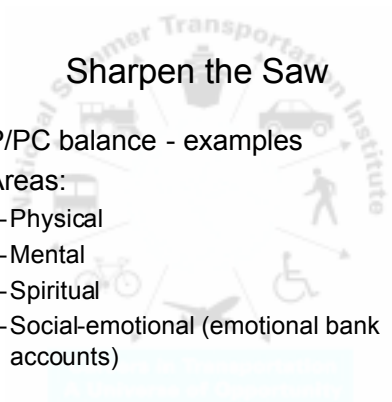
- Ignoring. Pay no attention to the other person or what he/she is saying
- Pretended listening. Act like we're listening but attention is elsewhere.
- Selective listening. Hear some things only
- Attentive listening. Listen with ears only.
- Empathic listening. Move below surface to the feelings and issues that really matter.

Synergize

- $1+1=3$
- Critical elements:
 - Win win attitude
 - Seeking first to understand
 - Belief in our abilities to find the 3rd alternative
- Brainstorming is an example



Group Exercise 2



Sharpen the Saw

- P/PC balance - examples
- Areas:
 - Physical
 - Mental
 - Spiritual
 - Social-emotional (emotional bank accounts)

2001 Summer Transportation Institute Seven Habits Exercises

Exercise 1. Group

The Verna Case Study

You supervise a production department and have requested a secretary. Your request is approved on one condition: you must use an existing employee named Verna. The supervisor of the order department, where Verna has been employed for the past 2 years, confides in you that Verna wasn't able to cope with the work flow and often misplaced orders or failed to process them completely. Management didn't want to fire her because she's nearing retirement, she supports herself, and she lacks self-confidence to find another job. They felt that secretarial work would be slower paced and something that she could handle.

You feel resentful that they pushed Verna on you. You had wanted a younger, more assertive person. Besides, Verna didn't perform well in the order department, so why should she perform well for you? But you were given no alternative, so you agree to use her. In your first meeting with Verna, you are surprised to find her alert, cordial and quite willing to work. Still, you know of her record and you aren't sure what to expect.

1. You have a chance to adopt a paradigm of Verna. What are your choices?

2. What differences might your paradigm make in Verna's performance? How might these differences come about?

3. Is it possible in this case that some positive, productive qualities that you imagine Verna to have could be true? Reports qualities false. Explain your thinking to your partners.

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Seven Habits Exercises

Exercise 2. Individual

A personal relationship

Remember the last bullet on the last slide: "We all see the World, not as it is, but as we are." With that in mind, take a few moments to reflect on a relationship of yours that isn't going as smoothly as you'd like. Consider the following questions:

1. Describe your paradigm of the other person. Have you labeled him or her? In what way?

2. Is it possible that your paradigm could be the source of the problem?

3. How might you change your paradigm to allow the relationship to improve?

4. How might you alter your actions in the relationship so that the other person might also grow and change?

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Seven Habits Exercises

Exercise 3. Group

P/PC Balance

Discuss the following questions within your group which ask you to analyze the P/PC balance principle as it relates to your "job." Provide feedback on one another's responses.

1. What key results are you responsible for producing as a student?

2. What is being done to maintain the assets (physical, financial and human) that allow you to produce these results?

3. Are P and PC in balance? If not, what price are you paying?

4. What action should be taken, if any, to achieve a more effective P/PC balance?

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Exercise 4. Individual

The Emotional Bank Account

Consider your important relationships. What are some of the Emotional Bank Account deposits you could immediately begin making to move you to a higher balance with these people? Feel free to share your ideas with others if you like, but you will not be asked to discuss this exercise.

Person	Deposits
_____	_____
_____	_____
_____	_____
_____	_____

How could these deposits affect your relationships?

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Seven Habits Exercises

Exercise 5. Group

Your New Year's resolution

Think of a New Year's resolution you've broken in the past. Something that's not too personal and that you don't mind sharing with your partners. If you don't make New Year's resolutions, pick something in your life that you have had a hard time changing. Each of you will use the three reactive explanations to explain why you haven't changed. Try to convince your partners that there is nothing you can do to make this change.

FIRST

Give a genetic explanation. In other words, explain that you can't change because that's just the way you are. You were born that way. You are just like your ancestors.

NEXT

Give a psychic explanation. Explain that you can't change because your parents raised you that way.

THEN

Give an environmental explanation. Explain that you can't change because someone or something else is really causing the problem.

Be creative with this. Don't just say, "I was born that way," and be done with it. Elaborate a bit. Tell why you believe that, and what the evidence is. The more fun you have with this, the more you'll learn. Partner A goes first, then partner B, then C.

FINALLY

Explain proactively why you've not managed to make this change. What paradigm or self-map has influenced you to behave this way?

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Seven Habits Exercises

Exercise 6. Group

Your Extra Assignment

Your boss recently asked you to research some ways to cut costs in your department and announced to your co-workers that you would be contacting each of them to discuss their ideas. Everyone agreed that this was a worthwhile effort and pledged their support. At first, you thought this would be a fun and interesting project because it would add some variety to your job and give you a chance to learn some new skills.

Lately, the assignment has become somewhat less exciting than you had hoped it would be. Scheduling time to meet with other employees in the department has been difficult and some do not seem very interested in providing you with information. To complicate the situation, it's hard to find a quiet meeting place and getting your regular job done on top of this added assignment is no easy task.

1. What are some reactive responses to this situation? How might they affect your Emotional Bank Account balance with co-workers and boss?

2. What are some proactive responses to the situation?

3. What effect would these proactive responses have upon your overall effectiveness in the department?

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Seven Habits Exercises

Exercise 7. Individual

Mission Statements

By completing the following six steps, you will have written a first draft of a personal mission statement that will provide inspiration, direction and guidance in your life. The process of writing involves as much discovery as it does creation as you become more aware of your natural talents and tendencies.

STEP ONE. INFLUENTIAL PERSON

1. Who has affected your life in a significant way for good? Identify one person who has exerted (knowingly or unknowingly) a positive influence in your life.

2. List the qualities you most admire in this person.

3. What qualities did you gain from this person?

STEP TWO DEFINING WHO YOU WANT TO BECOME

1. What I want to have or possess:

2. What I want to do or experience

3. What I want to be (qualities of character)

STEP THREE: DEFINING YOUR LIFE ROLES

You live your life in roles. For example, you may have roles in work, family, community organizations and in other areas of your life. These roles can provide a natural framework in helping you define what you want to be.

Example roles: student, teacher, brother, sister, son, friend, employee, etc.

Write your roles in the spaces provided on the attached worksheet. Next, identify the key person related to each role - for example, for the role of friend you could list your best friend(s). Then, project yourself forward to the end of your life and write a brief statement describing this person's feelings and thoughts as you would want to be described in that particular role.

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Seven Habits Exercises

Exercise 7 continued

STEP FOUR: WRITE A DRAFT MISSION STATEMENT

When you feel you have an accurate idea of how your roles contribute to the qualities of character you'd like to strengthen or acquire, write a rough draft of your personal mission statement. Carry the rough draft with you and make notes, additions and deletions before you attempt another draft.

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Seven Habits Exercises

Exercise 7 continued

STEP FIVE: CONTINUE REVISING AND REFINING

Place your mission statement in your planner or organizer and refer to it often. Use it as a standard by which you judge decisions and actions.

STEP SIX: PERIODICALLY REVIEW AND EVALUATE

Does my statement represent the best that is within me?

Do I feel direction, purpose, challenge and motivation when I review the statement?

Am I practicing the strategies and skills that will help me accomplish what I have written?

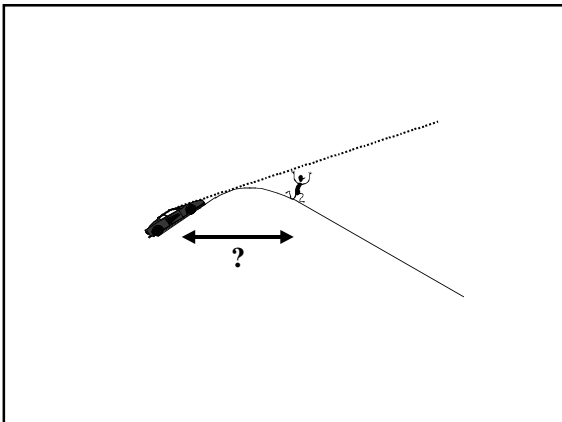
Does this statement inspire me?

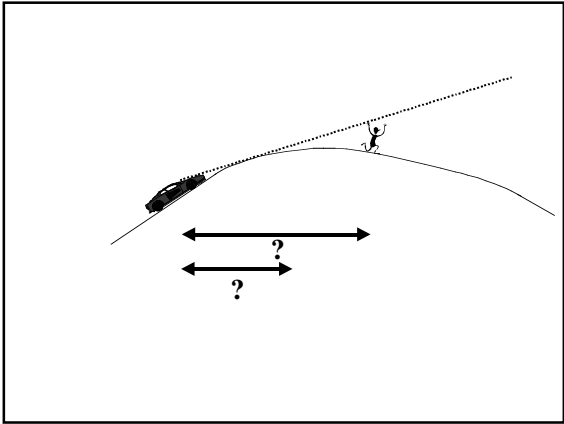
Today's agenda

- Final lunch
 - Pics and parents
- Chicago
 - Meals and White Sox
- Homework due:
 - Highway internet egg hunt
 - Mission statement
- Evaluations
- Sight distance models
- One more discussion using the 7 habits

Stopping Sight Distance Model

- Distance required:
- Distance supplied





Death penalty

<ul style="list-style-type: none">• FOR– Tara Bates– James Bridgeford– Adam Wallace– Brian Lange	<ul style="list-style-type: none">• AGAINST– Joy Davidson– Brent Powers– Brent Armstrong– Amanda Armes
--	--

**University of Missouri-Rolla
Summer Transportation Institute**

Covey Exercises Session II

Exercise 1. Group

For the situation described below, your group will take one of the two positions. You will team with another group who has taken the opposite position. Your goal is to begin looking at deeply felt wants in an effort to find a win-win solution. Create "want lists" and then, from the want lists, create a third alternative that allows you both to win. Remember that achieving a third alternative usually requires a paradigm shift on the part of one or both people.

ISSUE: Should a teenager own his or her own car?

Teenager's position: "I want to own my own car."

Parent's position: "I don't want my child to have a car"

Teenager's Want List

Parent's Want List

Third alternative: _____

**University of Missouri-Rolla
Summer Transportation Institute**

Covey Exercises Session II

Exercise 2. Group

Empathic Communication

INSTRUCTIONS:

Objective of teams: to gain an understanding of the opposing view through practicing habits 4, 5 and 6: Think Win-Win, Seek First to Understand then to be Understood, and Synergize.

Listen empathically strictly to understand - not to try to manipulate the other team into "seeing it your way."

Suggestions for accomplishing this:

- Repeat the content of the communication back
- Rephrase the content
- Reflect feelings (listen with your eyes as well as your ears to do this)
- Rephrase feelings and content
- Learn when not to reflect - sometimes it isn't necessary

Instructions for observers: observe team interactions. At the end of 15 minute discussion, critique each team in its attempt to empathize with the opposing team.

ACTIVITY 10.2

SURVEYING – MEASURING HORIZONTAL DISTANCES

INTRODUCTION

The task of determining the horizontal distance between two existing points is a fundamental surveying operation. Depending on the specific application and the required accuracy, one of several methods may be used to determine the horizontal distance. One such method is called pacing.

In certain surveying applications, only a rough approximation of distance is necessary. Pacing is one way to determine distance without the use of any equipment. Pacing simply involves counting steps

OBJECTIVES

Students will be able to:

1. Determine their own personal unit pace value.
2. Use pacing to calculate rough distance measurements.

MATERIALS

- a. A line of known distance
- b. Student Journal/Notebook
- c. Pen/Pencil
- d. Definition of a Pace
- e. Formulas for Unit Pace

ACTIVITIES

Students will:

1. Determine their pace value

NOTE: A pace is the distance between 2 successive positions of the toes (or heel) of the same foot.

- a. Walk normally along a line of known distance.
- b. Count the number of paces it takes to walk the distance. Record the number.
- c. Repeat steps a and b 5 times.
- d. Average your number of paces. Record the number.

- e. Calculate your Unit Pace using the formula below:

$$\text{UNIT PACE} = \frac{\text{Known Distance}}{\text{Average No. of Paces}}$$

- e. Record the number. This is your Unit Pace Value.

NOTE: A pace is expressed in terms of feet per pace (ft/pace) or meters per pace (m/pace).

2. Once you have determined your Unit Pace Value, you can begin making rough measurements of some distances between two points using the equation below:

$$\text{Distance} = \text{Unit Pace} \times \text{Number of paces}$$

3. Try making several rough measurements. Record your results.

QUESTIONS

1. What surveying application is used for rough distance measurement?
2. What relative accuracy can be expected when measuring distances by pacing?
3. How many paces = a stride?
4. Explain why no two people have the same pace value.
5. What's an advantage of using the pacing method to determine horizontal distance?
6. What's a disadvantage of using the pacing method to determine horizontal distance?

ACTIVITY 10.3

SURVEYING – Using a Transit

INTRODUCTION

One of the traditional measuring instruments used in the field for surveying is the transit. The transit measures horizontal and vertical angles. It consists of an optical line of sight which is perpendicular to and supported on a horizontal axis.

OBJECTIVES

Students will be able to:

1. Design and construct a transit.
2. Measure a long distance indirectly, two different ways.
3. Measure the angles between two distant points.

MATERIALS

- a. cardboard
- b. pen/pencil
- c. graph paper
- d. paper fastener
- e. scissors
- f. stapler/staples

ACTIVITY

Students will:

Activity 1

1. Cut a circle with a 7 inch diameter out of cardboard.
2. Divide the circle into 360 degrees.
3. Cut a second circle with a 5 inch diameter.
4. Cut a strip of cardboard 6 inches x 1 inch. Make the ends pointed by folding.
5. Staple the strip to the 5 inch circle.
6. Place the larger circle under the smaller one and secure them with a paper fastener.
Now you are ready to survey.

Activity 2

1. To find the angle between two distant points (we'll call them points A and B), line up the two paper points with the zero on your scale (cardboard circle) and point A. Without moving the outer circle, swing the part with the pointed ends around and sight on point B. The number of degrees on the scale will be the angle. Practice this a few times.

Activity 3

1. Find the angle of two points formed by 3 distant objects. Also, measure the hypotenuse and short side of the triangle that is formed. Using the graph paper, make a scale drawing of your situation. Calculate the missing side of the triangle by:
 - a. direct measure
 - b. measure on your scale drawing

REVIEW QUESTIONS

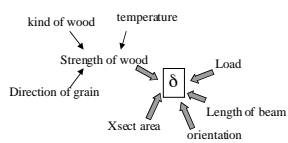
1. Was your measurement calculated from the scale drawing comparable to the actual measure? Why or why not?
2. How could your accuracy be improved?
3. Why is geometry important to surveying?
4. Why is trigonometry important to surveying?

Purpose today

- Define math models
- What are they used for?
- Examples

Group exercise

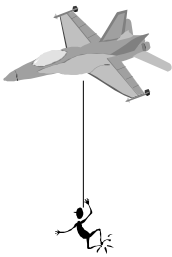
Given a simply supported beam (ruler on books), what factors affect deflection of beam?



Strength--E
Orientation, area -- I
Length -- L
Deflection -- δ
Load -- P

Position variables: PL^2/EI

The helicopter wire



Strength of wire = 60,000 psi
Explain psi concept

Actual stress on wire should be less than or equal to strength. What variables?

ANS: weight and area --- $wl/area$

Exercise 2

- Part A: weight 150#, Load/Area=stress
- $150/\text{Area} = 60000$
- $\text{Area} = 0.0025 \text{ sq in} \Rightarrow \text{diameter} = 0.0025'$
- Diameter = 0.056" - - a little less than 1/16"
- Part B: would you be willing to fly 1 mile above the ground to collect your mill?
 - Sources of uncertainty (simplifying assumptions)
 - Material strength = 60000??
 - Wt of wire neglected
 - Attachments: type and integrity

Engineers' dilemma

- Factor of safety used to assure no failure
 - Too big - will lose contest
 - Too small - will lose contestant
- Common dilemma: min cost vs max safety
- Been around for thousands of years:
 - Hammurabi (2000 BC) - see next page

Code of Hammurabi "The Babylonian Laws" G.R. Driver and JC Miles, Oxford Press, 1955, pg 83

- If a builder has built a house for a man and has not made his work sound, the house which he has built has fallen down and so caused the death of the householder, that builder shall be put to death.
- If it causes the death of the householder's son, they shall put the builder's son to death.
- If it causes the death of the householder's slave, he shall give slave for slave to the householder.
- If it destroys property, he shall replace anything that it has destroyed; and, because he has not made sound the house which he has built and it has fallen down, he shall rebuild the house which has fallen down from his own property.

Crash cushion design models

- How do they work?
 - Dissipate energy
- Energy - ability to do work
- Work - result of application of F over d
- Baseball example
- Energy of ball = energy consumed = Fd
- Definition: mass (ability to overcome inertia)

Crash cushion design models II

- How much energy does a baseball have?
 - Energy = $f(?)$
 - Ans: mass and velocity: Energy = $1/2 mv^2$
- For our experiment: place a car at top of incline. Why does it move? ANS: because I had to do work to get it up there. So, it has "potential energy" which equals what? ANS: mgh
- Exercise 3: find v given PE = KE

Crash cushion design models III

- Back to kinetic energy: if know weight of object and velocity of object, can find energy: Exercise 4.
- Now let's make it real: given my van etc exercise 5

2001 Summer Transportation Institute
Math Modeling Exercises

Exercise 1. Group

Given a simply supported beam as described in class, list 3 things that affect its deflection.

Exercise 2.

Suppose I offered you a chance to win \$1,000,000. All you have to do is tell me the smallest diameter steel wire that will hold your weight.

Part 1: Individual

Assume that you weigh 150 pounds, the strength of wire provided is 60,000 psi. What diameter wire do you recommend?

Part 2. Group

To be eligible for the money you must be willing to hang by that wire that you design from a helicopter hovering a mile above the ground. You want to be certain that the wire will hold your weight! Would you be willing to do this? If so, what precautions have you taken to make this wire safe? If not, why not? List 3 reasons.

2001 Summer Transportation Institute
Math Modeling Exercises

Exercise 3. Individual

Given Potential Energy (PE) equals Kinetic Energy (KE) for any given object and given that:

$PE = mgh$ and $KE = \frac{1}{2}mv^2$ where m = mass of the object, $g = 32.2 \text{ ft/sec}^2$ and v = velocity of the object, find v in terms of the other variables.

Exercise 4. Group

Mike James, pitcher for the Cardinals, is able to pitch an 8 oz. baseball at 90 mph (132 fps).

- a) Find the kinetic energy in the baseball in ft-lb.

- b) If I were to catch this ball, and typically my hand moves back about 6 inches when I catch it, what force would I feel from this?

Exercise 5. Individual

- a) My van weighs 4,500 pounds. Traveling at 60 mph (88 fps), how much energy does it have?

- b) Given that a 2 foot diameter barrel crushes down to 0.5 feet when subjected to 9,000 force. How much energy is consumed?

HOW MANY BARRELS SHOULD BE USED TO DISSIPATE THE ENERGY OF MY VAN?

2001 Summer Transportation Institute Crash Cushion Design Contest

Objective

Crash cushions are used to decelerate vehicle in a way that reduces the severity of head-on impacts with a fixed object. They spread the energy of the moving vehicle over time and space. Such devices are commonly used in front of retaining walls, bridge piers, etc. The objectives of this laboratory are:

- 1) To determine the speed of a vehicle traveling down a ramp.
- 2) To determine the number of crash devices necessary to dissipate the vehicle's energy.

Equipment

Stop watch, scale, rulers, pads of legal paper, tape, eggs, baggies, Barbie car, track and calculator.

Description

I. Determining vehicle speed requires that you find the vehicle's kinetic energy at the bottom of the incline. Remember that this is equal to the vehicle's potential energy at the top of the incline:

Potential energy = mgh and Kinetic energy = $1/2 mv^2$

where: m = mass of vehicle, $g = 32.2 \text{ ft/sec}^2$, h = height of vehicle off floor, and v = velocity of vehicle at bottom of incline.

- Step 1. Weigh vehicle
- Step 2. Calculate v :

$$\text{PE at top} = \text{KE at bottom} = mgh = 1/2 mv^2 \text{ so, } v = \sqrt{2gh}$$

- Step 3. Place vehicle at top of incline and let it go. Begin timing with stop watch when the front tire crosses the first mark and end timing when it crosses the second mark. Repeat at least once and calculate an average value.

$$\text{Measured velocity} = \frac{\text{Distance from 1st to 2nd mark}}{\text{measured time}}$$

How does the measured velocity compare to the calculated velocity?
List three reasons why it is different.

II. Number of crash devices needed requires that you find the kinetic energy of the vehicle as it reaches the bottom of the incline (you already know this number from I above). Next you will need to find the energy consumption of each paper tube given the following information:

Original diameter = 1"
Force applied = 0.5 pounds
Diameter after force is applied = 0.25"

Now use KE and energy consumption per tube to determine number of tubes needed:

$$\text{Number of tubes needed} = \frac{\text{kinetic energy of vehicle}}{\text{energy consumption of tube}}$$

III. Test cushion. Make the number of tubes that you calculated in II and tape them together in any configuration you want. Tape them together. Explain why you used the configuration that you did. The group(s) who are successful in preventing the egg breaking will get free movie passes.

**2001 Summer Transportation Institute
Crash Cushion Design Contest**

Report

Group Number: _____

Group members:

Part I

Weight of vehicle (containing egg) =	
Height of vehicle=	
Calculated velocity =	
Average measured velocity =	

Reasons why calculated and measured velocities are different:

1. _____
2. _____
3. _____

Part II

Energy consumption of each tube =	
Number of tubes needed =	

Sketch configuration used for crash cushion below. Also explain why you used this configuration. Report on your results - did your egg crack?



Internet Egg Hunt

Highways

1. How many miles did Americans travel (in person miles of travel) on US transportation systems in 1995? (BTS)
2. How many miles of public roads are there in the US (as of 1999) (BTS)
3. How many fatalities were there on our highways as of 1999? (BTS)
4. What is the Transportation Equity Act for the 21st Century (aka TEA 21)? Provide a brief description to submit (FHWA)
5. Obtain a picture of Interstate 10 and 79th Avenue in Phoenix Arizona (ADOT)
6. List 3 road construction projects taking place right now in St. Louis County (MoDOT)
7. Obtain a map of all road construction projects taking place in St. Louis County (MoDOT)
8. Find the following information about "Galloping Gertie" - a famous bridge in the state of Washington: (MADSCI)

Where was the bridge located?
What river did it span
What caused it to collapse?
Obtain a picture of the bridge as it collapsed.

9. How many highway bridges are there in the US? (BTS)
10. How many functionally deficient bridges are there in the US? (BTS)
11. What president signed into law the interstate highway system and in what year? (SOURCE)
12. How many miles does the system include? (SOURCE)
13. How much has it cost? (SOURCE)
14. Explain the two types of interstate number systems that are used for numbering exits.

Which one does Missouri use?

15. Describe the Highway Trust Fund - its purpose, how it works, etc. Submit a brief description. (FHWA)
16. Who was Garrett A. Morgan? (FHWA)

What is he famous for?
Provide a brief biography of the man.

17. Urban Planners:

How many people are urban planners?
What training is needed?
What is the expected salary range?
How does one go about becoming a planner?

2001 Summer Transportation Institute

List of recommended sites:

BTS: Bureau of Transportation Statistics (www.bts.gov) - - visit the American Travel Survey and Databases sections

FHWA: Federal Highway Administration (www.fhwa.dot.gov/)

ADOT: Arizona Department of Transportation - Intelligent Transportation Systems site (www.azfms.com/)

MoDOT: Missouri Department of Transportation (<http://www.modot.state.mo.us>) - visit the Local Scene

MADSCI: MadSci Network (madsci.wustl.edu) - browse archives and search for Galloping Gertie

SOURCE: The Source magazine (www.thesourcemag.com) - search the archives for interstate system

4.40

2001 Summer Transportation Institute
Intelligent Transportation Systems

Class Problems

1. If one were to construct a freeway with all lanes providing intelligent control, the problem of getting onto and off of the freeway would present a difficult problem. Devise a system that would allow this to happen at entrance and exit ramps. Describe your design using sketches as well as text.

2. It is not yet practical to provide a whole freeway with intelligent control, however, the City of St. Louis would like to convert the passing lane on I 270 North to intelligent control (leaving 2 lanes for regular traffic). Modify your design from above so that it would work in this situation. Again, use a sketch along with words to describe your ideas.

**2001 USDOT Summer Transportation Institute
University of Missouri-Rolla**

*Questions for Introduction to Highway Engineering
July 2, 2001*

1. On what highways have you worked?
2. When will St. Louis highways be done with construction?
3. Do you think that the highway engineering field is one of the better fields?
4. What goes into making the highway?
5. Do you think you would have chosen a different field now that you're in?
6. Do opportunities for advancement in your profession exist?
7. In general, how much time is spent on a particular project?
8. Is your profession financially rewarding? What is the pay range?
9. What skills are beneficial for your career?
10. What type of work schedule do you keep? Regular hours or something else?
11. Do you have the opportunity to work in private practice and be successful?
12. How often do you work out of the office?
13. What percentage of your job is done behind a desk?
14. What things are helpful to prepare to be a highway engineer?
15. How has your pay increased from year to year after school?
16. Exactly what aspect of highway engineering are you involved in and what does this job's work consist of?
17. What is the most interesting part of your job?
18. What are some aspects of your job?
19. What kind of preparation do you need?
21. How much do you travel on your job?
22. What do you do on an average day?
23. What type of companies do highway engineers work for?
25. How long did you have to go to school?
26. What degree do you have?
27. What is the competition like?
28. How long have you spent in your field?
29. Why did you choose to go into your field?
30. What type of work do you do?
31. Do you travel often? If so, where have you seen?

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University of Missouri-Rolla**

*Questions for Introduction to Air Transportation
July 9, 2001*

1. What type of air transportation are you in?
2. What types of work do you do in and out of the office?
3. Is your work exciting?
4. Do you do a lot of traveling?
5. How much money does a person in your profession earn per year?
6. How long does it take to learn to fly?
7. What do you do in an average day?
8. What opportunities are out there for a person wanting to be in your profession?
9. Do you enjoy your work?
10. Are you a pilot?
11. What type of equipment do you use?
12. What was your major in college?
13. What University did you attend?
14. What types of engineering are involved with air transportation?
15. What other jobs are centered around air transportation?
16. What courses in college are important to take if one would like to enter the world of air transportation?
17. What are the details of your job?
18. What kind of college education did you receive?
19. What kind of agency do you work for?
20. What are the job opportunities in air transportation in the future?

**2001 USDOT Summer Transportation Institute
University of Missouri-Rolla**

*Questions for Introduction to Public Transportation
July 16, 2001*

1. How many passengers are moved each day?
2. How much does it cost to operate the system?
3. Are there any plans for expansion?
4. How do you receive advertisements for train stations?
5. What is the most practical and affordable way of moving people?
6. Other than buses, what is the most popular way of moving people?
7. What training is needed to work in public transportation?
8. How much profit is made from a \$1 to \$1.50 bus ticket?
9. How do you decide bus schedules?
10. How are you funded?
11. What is the average salary in the public transportation sector?
12. How do you know how many buses to have at one time?
13. How are you dealing with the rising price of energy sources?
14. How much effort does it take to work out bus schedules?
15. Are bus schedules based upon rail schedules?
16. How many more people prefer bus over train or train over bus?
17. Who determines how far a train track goes? A company? The government?
18. How many railroads and subways are in the US?
19. What makes bus schedules a success?
20. How do you train drivers?
21. Wise guy question: If a train leaves NY at 50 mph and another leaves Union Station at 60 mph, and they both leave at 6 am (central time) and the distance is 3,000 miles (possible curves) at what time and where will they meet?

**2001 USDOT Summer Transportation Institute
University of Missouri-Rolla**

*Questions for Trucking Industry
July 25, 2001*

1. Exactly how many shipments do you make each year?
2. What is the maximum weight that a semi can hold?
3. Did you go to college? If so, what kind of courses did you take?
4. What sort of training is needed to work in your field?
5. What companies do you ship for?
6. How much do you travel?
7. How far do you travel?
8. What is most interesting about your job?
9. How do you train your drivers?
10. How long does it take to learn how to drive a truck?
11. How hard is it to become a truck driver?
12. What is the salary?
13. What is the hardest part of the job?
14. What is the largest amount of cargo that you may haul at one time?
15. Do you have to use special types of maps to see where a truck is able to fit (under bridges - height, over bridges - weight).
16. How do you decide what type of trailer to use?
17. Do you conference with bridge builders in order to make special provisions for the trucks of a certain company?
18. How do you do business with other countries?
19. Did you learn another language?
20. How do you deal with immigrants trying to sneak through the border on your trucks?
21. What is the average salary earned by a trucker today?
22. What kind of technology is there in the cab now?
23. What are the restrictions on driving hours?
24. Is there a lot of money that goes into a truck after it is on the road besides gas? If so, how much?
25. What types of technology are used in the trucking industry?
26. Do you bid on contracts for shipping? If not, how does your company acquire business?
27. What types of maintenance procedures are followed to assure your trucks continue running?
28. How much does a typical truck cost?
29. Do you receive discounts for purchasing large numbers of trucks?
30. How do you track trucks on the road?
31. What type of communication system is used in order to keep contact between the driver and company?
32. What college degrees are required for the various positions within your operation?
33. Are there chances for promotions?



STI 2001

Moving Toward the Future.



Amanda Armes

Hometown: West Frankfort, IL
School: Frankfurt Community High School
School Graduation Year: 2002
“Where's Tara?”



Brent David Armstrong

Hometown: University City, MO
School: University City High School
Graduation Year: 2004
“I'm working on it.”



Tara Bates

Hometown: St. Louis, MO
School: Lutheran North
Graduation Year: 2003
“Where's Amanda?”



James W. Bridgeford II

Hometown: Kansas City, MO
School: Center Senior High School
Graduation Year: 2003
“My name is James and I'm from Alaska.”



Terry M. Brietzke

Hometown: Bridgeton, MO

School: Pattonville High School

Graduation Year: 2002

“Oh my gosh! Did you see that car? It was a ...”



Joy Davidson

Hometown: Florissant, MO

School: Lutheran North

Graduation Year: 2002

“Leave me alone, I’m going to do my homework.”



Ike Howdeshell

Hometown: St. Louis, MO

School: Afton High School

Graduation Year: 2003

“Wanna race?”



Stephanie Hudson

Hometown: St. Louis, MO

School: Horton Watkins

Graduation Year: 2003

“I understand, but É”



J.R. Kessler

Hometown: Lee's Summit, MO
School: Lee's Summit High School
Graduation Year: 2002
"I wanna go home."



Ricky Knox

Hometown: St. Robert, MO
School: Waynesville High School
Graduation Year: 2002
"I make music with my mouth,
ya' heard."



Brian Lange

Hometown: Marthsville, MO
School: Washington High School
Graduation Year: 2003
"I'm not a country boy!!"



Jeffrey Leng

Hometown: Jefferson City, MO
School: Jefferson City High School
Graduation Year: 2002
"Yeah buddy!!!!"



Brent Powers

Hometown: Chesterfield, MO
School: DeSmet Jesuit High School
Graduation Year: 2003
"I love lacrosse."



Jade R. Van Pelt

Hometown: Arnold, MO
School: Fox Sr. High
Graduation Year: 2003
"Ten thirty, time to go to sleep."



Adam Wallace

Hometown: St. Louis, MO
School: DeSmet Jesuit High School
Graduation Year: 2002
"I don't care."



Daronn A. Williams

Hometown: University City, MO
School: University City High School
Graduation Year: 2002
"Hey, I have a question."



Dwayne Bogle
Student Counselor

“I gotta get my swoll on for
trilla (I’ve got to become buff.)”



Yana Conner
Student Counselor
“Silly rabbit.”



Jonna Gibbs
Student Counselor
“I’m tired.”



Larry Vonalt
Faculty
“Quiet, I’m getting a headache.”



Hooda Jadi
Counselor

“Where are we going?”



Amanda Withers
Counselor

“No No É wait ... I don't have road rage.”



George Daniel
Counselor

“Why would I keel heem?”



Tarik Clark
Counselor

“Right. (wink) Tell me another one.”





Lelia Flagg
Academic Aid

“Dwayne, what's the head-count?”



Mohammad Qureshi
Faculty

“Gary, grab my glowstick and the vest.”



Gary Spring
Director

“Is that MY check?!?”



Sue Turner
Administrative Aid

“I've got the checks.”

Appendix 5.
Closing Program

Advisory Board

Robert T. Berry
Vice President, Burns & McDonnell

Arthur Lieber
Civitas

Gabrielle Mack
Office of Diversity, Sverdrup

Ray Purvis
RD&T Division Engineer, MODOT, retired

Glenn Smith
Office of Civil Rights, FHWA

Sherrie Koechling-Andrae
Faculty, Lincoln U

Sponsors

University of Missouri-Rolla
Missouri Department of Transportation
Federal Highway Administration
Center for Infrastructure Engineering Studies
Civitas
Burns & McDonnell
Sverdrup



U.S. Department of Transportation 2001 Summer Transportation Institute

Closing Banquet



Friday, July 27, 2001

12:00 to 2:00 PM

University Center East

Program

Dr. Gary S. Spring, Presiding

*Welcome Dr. Gary S. Spring
STI Director*

*Greetings from the University of Missouri-Rolla Dr. Robert Mitchell
Dean of Engineering*

*Greetings from the Federal Highway Administration Mr. Allen Masuda
Missouri Division Administrator*

*Greetings from the Missouri Department of Transportation Mr. Will Stalcup
Missouri DOT Research Division*

Reflections a slide show to be presented during lunch

Luncheon

*Award presentations Dr. Gary S. Spring and Dr. Mohammad Zureshi
Certificates
Achievement Awards*

Special Recognitions Dr. Gary S. Spring

Closing Remarks Dr. Gary S. Spring

2001 STI Graduates

- Ms. Amanda Armes
- Mr. Brent David Armstrong
- Ms. Tara Bates
- Mr. James W. Bridgeford II
- Mr. Terry M. Brietzke
- Ms. Joy Davidson
- Mr. Ike Howdeshell
- Ms. Stephanie Hudson
- Mr. J.R. Kessler
- Mr. Ricky Knox
- Mr. Brian Lange
- Mr. Jeffrey Leng
- Mr. Brent Powers
- Ms. Jade R. Van Pelt
- Mr. Adam Wallace
- Mr. Daronn A. Williams

Congratulations!

Appendix 6.
Samples of Student Work



Internet Egg Hunt

Highways

- 1. How many miles did Americans travel (in person miles of travel) on US transportation systems in 1995? (BTS) → 39,908
- 2. How many miles of public roads are there in the US (as of 1999)? (BTS) → 3,948,893 ← highway
- 3. How many fatalities were there on our highways as of 1999? (BTS) → 41,611
- 4. What is the Transportation Equity Act for the 21st Century (aka TEA 21)? Provide a brief description to submit (FHWA)
- 5. Obtain a picture of Interstate 10 and 79th Avenue in Phoenix Arizona (ADOT)
- 6. List 3 road construction projects taking place right now in St. Louis County (MoDOT)
- 7. Obtain a map of all road construction projects taking place in St. Louis County (MoDOT)
- 8. Find the following information about "Galloping Gertie" - a famous bridge in the state of Washington: (MADSCI)

Where was the bridge located? Tacoma, Washington
 What river did it span? The Narrows (part of Puget Sound)
 What caused it to collapse? resonance. The natural frequency was the same as that of the external force
 Obtain a picture of the bridge as it collapsed. ok

- 9. How many highway bridges are there in the US? (BTS) 589,542 bridges total
- 10. How many functionally deficient bridges are there in the US? (BTS) → 81,900
- 11. What president signed into law the interstate highway system and in what year? (SOURCE) → Eisenhower, 1956
- 12. How many miles does the system include? 42,000 (SOURCE)
- 13. How much has it cost? (SOURCE) \$130 Billion
- 14. Explain the two types of interstate number systems that are used for numbering exits.
 Sequential numbering - every exit is in chronological order and the numbers are incremental regardless of distance between exits (first exit is 1, 2nd is 2, etc)
 Which one does Missouri use?
 Missouri → Mile log number system - the exit numbers correspond to mileposts (always 0)
- 15. Describe the Highway Trust Fund - its purpose, how it works, etc. Submit a brief description (FHWA)

- 16. Who was Garrett A. Morgan? (FHWA)

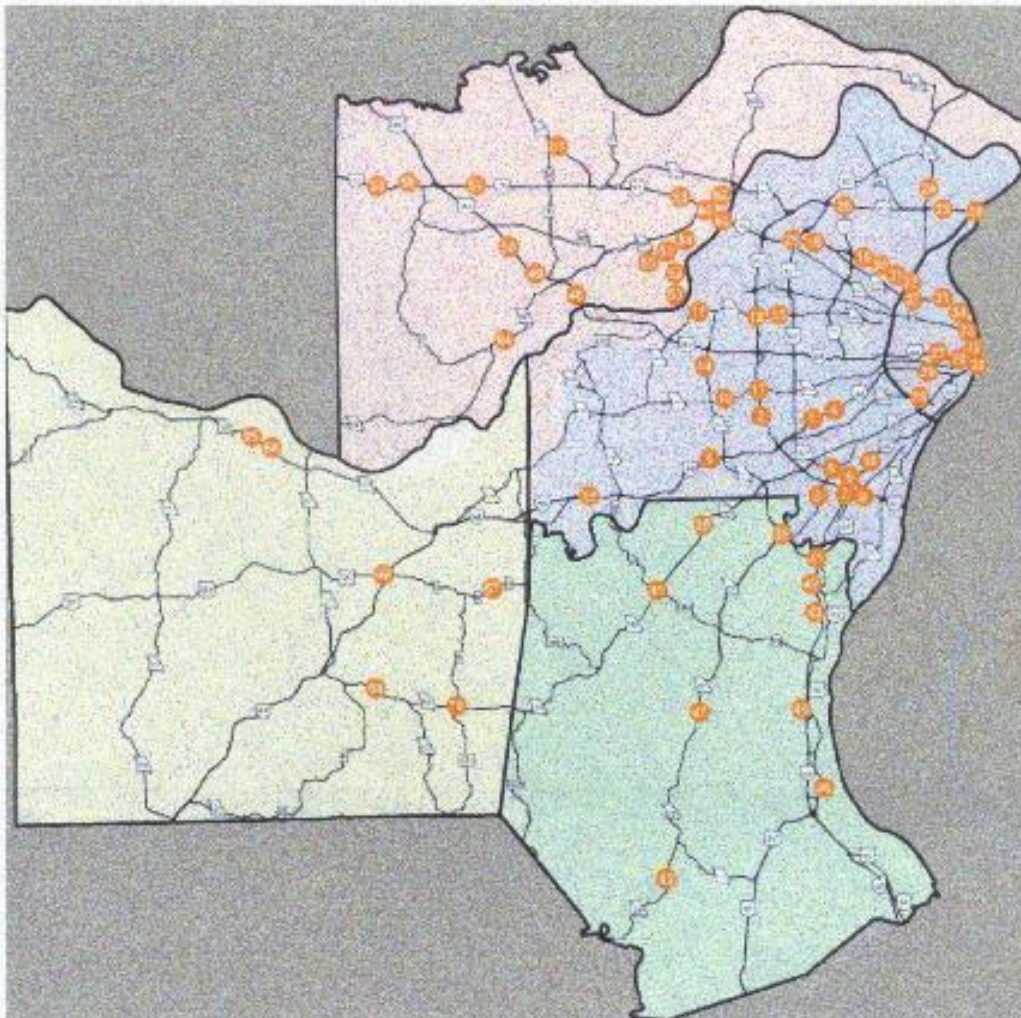
What is he famous for? inventing the three position stop light
 Provide a brief biography of the man.
 Lived from 1877-1943 - became inventor

- 17. Urban Planners: Continued studying after formal school - became inventor
 good at finding things to be opened down business

How many people are urban planners? 29,000 in 1994
 What training is needed? college degree
 What is the expected salary range? \$30,000 - \$63,000
 How does one go about becoming a planner?

- Become proficient w/ computers
- Communicate proficiently.
- Master's degree in urban/regional planning or urban design or equivalent work experience.
- master's degree from accredited planning program is best training for most fields

OR
 bachelor's degree in planning position and Master's degree in civil engineering or another relevant field.



Construction Projects in St. Louis District (incl. St. Louis County)

(MODOT)

3 Projects in St. Louis County

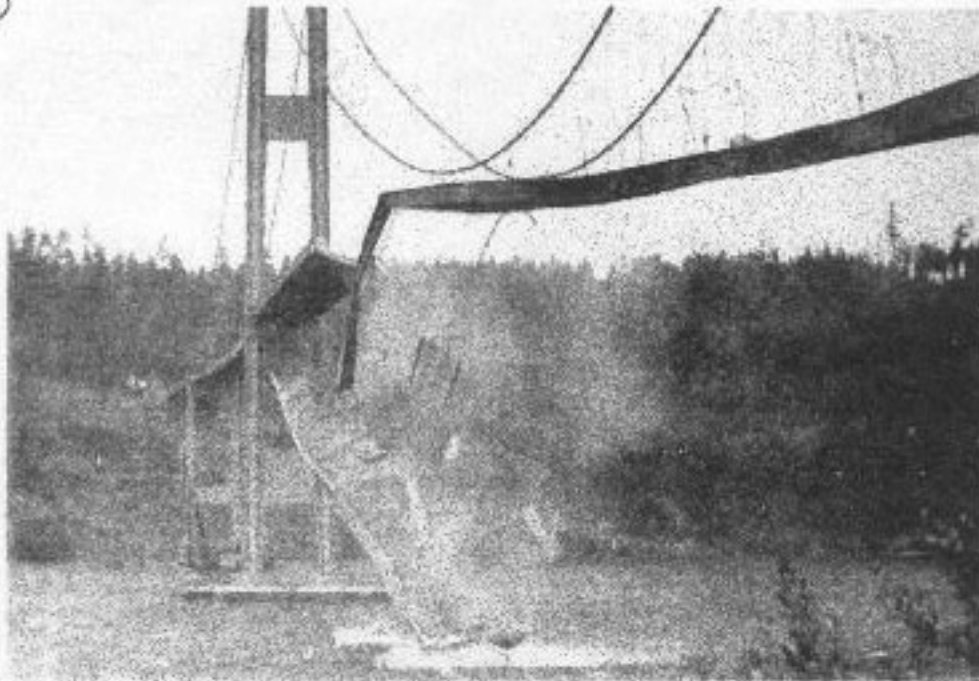
⑥

1. I-44 from Lindbergh to Murdoch Ave.
 - Resurface and re-habilitate bridges
 - Underway/Fall 2001
2. I-44 at Elm Ave. ~~road~~
 - Widen eastbound I-44 off-ramp and improve signals
 - Spring 2001/Fall 2001
3. I-55 and I-270
 - Construct sound walls
 - Spring 2001/Winter 2002



I-10 and 79th Ave in Phoenix, Arizona (ADOT)

③



<http://www.secret.org/narrows/index.asp>

15

Financial Statement

1. The Highway Trust Fund--Where It Comes From

The Federal Highway Trust Fund (HTF) is the principal source of funds for federal surface transportation programs. Established by the Highway Revenue Act of 1956, and extended periodically through subsequent legislation, the HTF receives revenues from excise taxes on gasoline, diesel, and other motor fuels, as well as several excise taxes related to heavy trucks. The current rate of federal taxation for gasoline is 18.4 cents per gallon, and 24.4 cents per gallon for diesel fuel. The HTF has two accounts: Highway and Mass Transit. The programs of FHWA are supported by the Highway Account. Revenues to the Highway Account of the HTF by category for FY 1999 are shown at right.

Current law requires that a portion of the revenue to the HTF accrues to a Mass Transit Account, used to finance federal transit programs. The amount accruing to the Mass Transit Account equals 2.86 cents per gallon of the federal gasoline and diesel taxes, and a portion of other fuel taxes. In FY 1999, the Mass Transit Account was credited with \$5,477,927,289.



TEA-21 - Transportation Equity Act for the 21st Century *Moving Americans into the 21st Century*

[TEA-21 Home](#) | [DOT Home](#) | [Previous](#) | [Summary Contents](#) | [Next](#)

A SUMMARY - An Overview

On June 9, 1998, the President signed into law PL 105-178, the Transportation Equity Act for the 21st Century (TEA-21) authorizing highway, highway safety, transit and other surface transportation programs for the next 6 years. Subsequent technical corrections in the TEA 21 Restoration Act have been incorporated; thus, the material presented here reflects the combined effects of both Acts and the two are jointly referred to as TEA-21.

TEA-21 builds on the initiatives established in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), which was the last major authorizing legislation for surface transportation. This new Act combines the continuation and improvement of current programs with new initiatives to meet the challenges of improving safety as traffic continues to increase at record levels, protecting and enhancing communities and the natural environment as we provide transportation, and advancing America's economic growth and competitiveness domestically and internationally through efficient and flexible transportation.

Significant features of TEA-21 include:

- Assurance of a guaranteed level of Federal funds for surface transportation through FY 2003. The annual floor for highway funding is keyed to receipts of the Highway Account of the Highway Trust Fund (HTF). Transit funding is guaranteed at a selected fixed amount. All highway user taxes are extended at the same rates when the legislation was enacted.
- Extension of the Disadvantaged Business Enterprises (DBE) program, providing a flexible national 10 percent goal for the participation of disadvantaged business enterprises, including small firms owned and controlled by women and minorities, in highway and transit contracting undertaken with Federal funding.
- Strengthening of safety programs across the Department of Transportation (DOT). New incentive programs, with great potential for savings to life and property, are aimed at increasing the use of safety belts and promoting the enactment and enforcement of 0.08 percent blood alcohol concentration standards for drunk driving. These new incentive funds also offer added flexibility to States since the grants can be used for any Title 23 U.S.C. activity.
- Continuation of the proven and effective program structure established for highways and transit under the landmark ISTEA legislation. Flexibility in the use of funds, emphasis on measures to improve the environment, focus on a strong planning process as the foundation of good transportation decisions—all ISTEA hallmarks—are continued and enhanced by TEA-21. New programs such as Border Infrastructure, Transportation Infrastructure Finance and Innovation, and Access to Jobs target special areas of national interest and concern.
- Investing in research and its application to maximize the performance of the transportation system. Special emphasis is placed on deployment of Intelligent Transportation Systems to help improve operations and management of transportation systems and vehicle safety.

This page last modified on July 14, 1998

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United States Department of Transportation

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WHY THE BRIDGE COLLAPSED, COMPETING THEORIES

Initial suggestions as to the cause of the TNB collapse came from the FWA commission. Without drawing any definitive conclusions, the commission explored three possible sources of dynamic action; aerodynamic instability (negative damping) producing self-induced vibrations in the structure; eddy formations which might be periodic in nature; and the random effects of turbulence, that is, the random fluctuations in velocity and direction of the wind. Each source was considered separately in seeking the causes of the vertical and torsional oscillations. The commission appeared to have identified the leading possible contributors to the destructive oscillation, since all competing theories which followed to date fit into one of the above categories.

The standard textbook explanation for the collapse attributes the cause of the failure to the phenomenon of resonance. Like a mass hanging from a spring, a suspension bridge's deck hanging from its cables oscillates at a natural frequency, or more than likely being multi-modal, has several natural frequencies. In order for a resonant phenomenon to exist, the driving force would have to be periodic, that is, varying regularly with respect to time. The mathematical model that most simply illustrates this type of behavior is represented by the following differential equation:

$$m\ddot{x} + b\dot{x} + kx = F\cos\alpha_1 t \quad (1.1)$$

where m = mass of the system
 b = damping coefficient of the system
 k = stiffness of the system
 α_1 = radian frequency of the exciting (input) force
 F = amplitude of the exciting force
 x = characteristic (output) motion of the system

**2001 Summer Transportation Institute
Crash Cushion Design Contest**

Report

Group Number: _____

Group members:

Alan Wallace, Ike Hineshall, Darann Williams
D

Part I

Weight of vehicle (containing egg) = $2\frac{1}{16}$	$2\frac{1}{16}$ lbs
Height of vehicle = 1.7917ft	1.7917ft
Calculated velocity = 10.5 ft/sec	10.5 ft/sec ✓
Average measured velocity = 8 ft/sec	8 ft/sec ✓

Reasons why calculated and measured velocities are different:

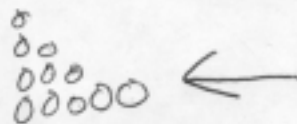
1. Tires slow down the car
2. The bump on the bottom slow the car
3. The Carpet slows it down

Part II

Energy consumption of each tube =	.67125
Number of tubes needed =	11 ✓

Sketch configuration used for crash cushion below. Also explain why you used this configuration. Report on your results - did your egg crack?

This way it would slow it down a bit plus the bottom was thicker because it absorbed more of the blow. ~~It allowed~~ the egg was on the bottom so it had less of a crash than the rest of the car



our egg did not crack.

Ike Howdeshell

Mission Statement

I want to make a difference. I want to teach, I want to learn, I want to help, I want to build, I want to create, and I want to have fun. Wealth does not matter to me. I just want enough to support a family. I want a wife, I want kids, I want a home, and I want a job. I have no idea what my future will be like. All I really want is to not regret the choices I make. I know my future is in my hands. Maybe someday I will be a lawyer, or a teacher, or an engineer, or even a politician. My mind is open, and I do not plan on making any huge decisions at this time. I plan on going to college, I plan on having a family, I plan on having a good job, and I plan on having a wonderful life. Everyone in the world plans on a ~~good life~~ good life, but ~~the~~ in reality we hardly ever get what we want. To have a good life I must work hard and always remember that to succeed you must also ~~fail~~ fail. Life is like a rollercoaster, there are up and downs and hopefully after it's all over you had some fun.

The **STI** Informer

July 24, 2001

Washington University

By Jade VanPelt

Wednesday night we arrived at Washington University. We stayed there for one night in the greatest rooms I have ever seen. The rooms were more like hotels than dorms. In the rooms there



were two desks and two shelves. There were two closets, a telephone, and two beds that could be stacked, to make bunk

beds. There was one bathroom that connected two rooms. This was a lot different than T.J. because we all share one big bathroom there. There was also a lounge that contained a big screen TV and a few couches, a library that contained tables to sit and study at, and on each floor there was a room with tables and a soda machine. In the building with the cafeteria there was also a store and gym to work out in. I think this was a neat place to get to stay at, and I also think this was one of the nicest colleges I have seen so far.



Our Wonderful Trip to Chicago

By Amanda Armes

When we went to Chicago we got to see some interesting stuff. First, we went to the Regional Transportation Authority Headquarters. We saw a video then we went to see the control room. Then, we went to the Metra Ogilvie Transportation Center and toured the station. Jeff smashed a penny on the track which sadly enough was the highlight

of the morning. After lunch we went to Burlington Northern/Santa Fe, the largest terminal in the Chicago area, and saw how they take containers off of trains and make them into trailers. In the evening we went to the White Sox game. Unfortunately they lost to the Red



Sox. After the game there was a karaoke contest. Then there were fireworks. The fireworks were awesome. On Saturday some of us went to the beach and the others went to the zoo. It was extremely hot that morning. After that we had lunch at Pizzeria Duo. The pizza was like soup with bread in it. After lunch we went shopping on Michigan Avenue. Then we went back to the dorm to chill and get ready to go back home. Our trip to Chicago was an interesting experience that no one will soon forget.

Pictures By Brent Powers

Newsletter, pg. 1

A Visit to the TWA Training Center

Adam Wallace

This week we visited the TWA training Center in St.Louis, Missouri. While at the training center we were given a tour of the center and the simulators the pilots use to train. In the training center we also got to see the dispatch center for TWA. That was neat because we got to see a computer that keeps track of every plane in the sky. While we were there the guide showed us how he can click on a plane and see all of the statistics on it such as air speed, flight number, altitude, and much more. That was pretty neat. Afterwards we went to a room named the "shake and bake" room. When we walked in there was a simulator that we entered. It is used to train airline hostesses and host to handle emergencies. They went ahead and started to shake it and release smoke in the cabin of the simulator. We had to act as if it was a real emergency and we got to jump out the emergency door and down the slide. That was the highlight of the tour. That pretty much ended our tour of the training center. Overall the center was a great experience.



Photo Courtesy of Rob Serrano

Fast and the Furious

Adam Wallace

On Thursday night we were able to see a movie. A lot of us went to see a movie called *The Fast and the Furious*. The movie was about an undercover cop who joins a street racer in order to find out who is behind all of the truck robberies in the movie. While with the crew he becomes attached and rides with them everywhere. The movie shows the strong bond between all of the street racers. The movie story line was pretty bad in my opinion but the races and the cars were worth the admission to the film. I would go see it again just to see the cars. Enjoy some pictures from the film.



The Rolla Review

Ike Howdeshell, Adam Wallace, and Brent Armstrong

Rolla?

By Ike Howdeshell

Where am I? A week ago I was dumped in the middle of nowhere with 17 strangers. Plus, I had to live in a dorm and eat cafeteria (prison) food three times a day! A week might not seem like a long time, but you probably have no idea how boring Rolla is. One night we spent an hour



roaming the aisles of Wal-Mart. I'm not saying Wal-Mart is a bad place to shop, but I did not plan spending my summer vacation roaming around Wal-Mart with 17 teenagers. Aside from Wal-Mart there is

little to do in Rolla. We spend our nights



playing with the elevator and watching MTV for hours. Being bored is one thing, but on some nights we have to read and study. I thought summer break would be a break not an extension

of school. Okay, enough bad mouthing Rolla. The campus facilities are actually very nice. One night we went to the Multi-Purpose Building and played basketball. They also have an indoor track and several racketball courts. All in all, Rolla is a very boring town with little to offer, but we always manage to find something to do.

Living At T.J.: An Experience

By Adam Wallace

Living at T.J. is an experience in itself. When you drive up to the two tall massive buildings you have the impression that you are in for something bad. When you walk in you then realize that you are in for something bad. Once in T.J., you see out of order signs on the elevators because they are broke down. When you go into the dorm room itself you are greeted by a funny smell and blast of cold air. Even the halls and the showers are cold, but that's not the worst part.

The worst would have to be that horrible food they serve in the cafeteria. It is just like prison food. It reminds me of the one episode of *The Simpsons* where Bart is in the cafeteria of the school. Bart cracks his nuckles and it sounds like they all break. He says, "My bones are so brittle, but I always drink plenty of... Malk?!?!?!". That is about what they give us

here at T.J. The food is about one step above army food.

On the plus side at least there is a view from the dorms balcony and free cable. Since there isn't much to do in Rolla, cable is a good thing to have.

In addition to that, T.J. is close to campus and the Multi-Purpose Building in which you can play basketball and do many other things.

Well that's it for the complaints and comments about T.J. If you have any stories or complaints about T.J. that you would like to tell me, e-mail me at stj16@umr.edu



Appendix 7.
List of Participants

Participant	High School
Amanda Armes 14193 State Highway 149 West Frankfort, IL 62896 Phone: 618-937-3046 Entering grade 12	Frankfurt Community High School 601 East Main St. West Frankfort, IL 62896 Phone: 618-932-3126
Brent David Armstrong 7035 Pershing Ave University City, MO 63130 Phone: 314-726-1438; 314-726-2260 (fax) Entering grade 10	University City High School 7401 Balson Ave University City, MO 63130 Phone: 314-290-4100
Tara Bates 7029 Dawson Pl St. Louis , MO 63136 Phone: 314-382-2989 Entering grade 11	Lutheran North 5401 Lucas and Hunt St. Louis , MO 63121 Phone: 314-389-3100
James W. Bridgeford II 11130 McGee St. Kansas City, MO 64114 Phone: 816-943-9194 Entering grade 11	Center Senior High School 8715 Holmes Rd. Kansas City, MO 64131-2898 Phone: 816-349-3300
Terry M. Brietzke 11076 Warwickhall Dr. Bridgeton, MO 6304 Phone: 314-738-0254 Entering grade 12	Pattonville High School 2497 Creve Coeur Mill Rd. Maryland Heights, MO 63043 Phone: 314-213-8051 x 8072
Joy Davidson 12045 Rollingsford Florissant, MO 63033 Phone: 314-653-0173 Entering grade 12	Lutheran North 5401 Lucas and Hunt St. Louis , MO 63121 Phone: 314-389-3100
Ike Howdeshell 6926 Aliceton St. Louis , MO 63123 Phone: 314-842-0189 Entering grade 11	Afton High School 8309 MacKenzie St. Louis , MO 63123 Phone: 314-638-6330
Stephanie Hudson 4342 Washington Blvd. St. Louis , MO 63108 Phone: 314-533-8893 Entering grade 11	Horton Watkins Ladue, MO Phone:

Participant	High School
J.R. Kessler 409 SW Mission St. Lee's Summit, MO 64063 Phone: 816-524-8073 Entering grade 12	Lee's Summit High School 400 SE Blue Parkway Lee's Summit, MO 64063 Phone: 986-2000 Ext 2118
Ricky Knox 124 Sawmill Road St. Robert, MO 65584 Phone: 573-336-3132 Entering grade 12	Waynesville High School 200 Fleetwood Drive Waynesville, MO 65583 Phone: 573-774-6497
Brian Lange 345 Scenic Ridge Marthsville, MO 63357 Phone: 636-433-2274 Entering grade 11	Washington High School 600 Blue Jay Drive Washington, MO 63090 Phone: 636-239-5585
Jeffrey Leng 1811 Bassman Rd. Jefferson City, MO Phone: 573-634-2340 Entering grade 12	Jefferson City High School 609 Union Jefferson City, MO 65101 Phone:
Brent Powers 2620 Chatham Place Ct. Chesterfield, MO 63005 Phone: 636-227-8786 Entering grade 11	DeSmet Jesuit High School 233 N. New Ballas Road St. Louis , MO 63141 Phone: 314-567-3500
Jade R. Van Pelt 2361 Sunny Side Dr. Arnold, MO 63010 Phone: 636-296-5664 Entering grade 11	Fox Sr. High 745 Jeffco Blvd Arnold, MO 63010 Phone: 636-296-5210
Adam Wallace 4518 Bridlewood Terrace St. Louis , MO 63128 Phone: 314-892-6351 Entering grade 12	DeSmet Jesuit High School 233 N. New Ballas Road St. Louis , MO 63141 Phone: 314-567-3500 ext 212
Daronn A. Williams 8140 Braddock Dr. University City, MO 63130-1237 Phone: 314-997-7269 Entering grade 12	University City High School 7401 Balson Ave University City, MO 63130 Phone: 314-290-4110

Appendix 8.
Demographic Summary Sheet

DEMOGRAPHIC SUMMARY SHEET

NAME OF HOST SITE: UMR

YEAR REPORTING: 2001

DATES OF INSTITUTE: June 24, 2001 to July 27, 2001

PROGRAM CLASSIFICATION

HIGH SCHOOL

MIDDLE SCHOOL

RESIDENTIAL PROGRAM

NONRESIDENTIAL PROGRAM

NUMBER OF APPLICANTS: 18

NUMBER OF PARTICIPANTS: 16

NUMBER COMPLETING PROGRAM: 16

ETHNIC BACKGROUND BY NUMBER

NATIVE AMERICAN

8 CAUCASIAN

1 ASIAN

7 AFRICAN AMERICAN

HISPANIC

OTHER

GENDER

11 MALE

5 FEMALE

GEOGRAPHIC REPRESENTATION

NUMBER OF CITIES: 12

NUMBER OF COUNTIES: 9

Appendix 9.
Evaluation Materials

Evaluation Results - 2001

Evaluation Table 9.1

<u>Speakers</u>	Mode	Mean	Median	SD
Speaker were organized	4.0	3.4	3.5	0.7
Academically challenged by activities	3.0	2.6	3.0	1.0
Speakers responded well	4.0	3.8	4.0	0.4
<u>Staff</u>				
Staff were interested in awareness	4.0	3.8	4.0	0.5
Staff were helpful	4.0	3.6	4.0	0.5
Staff encouraged students	4.0	3.7	4.0	0.5
Staff available for questions	4.0	3.8	4.0	0.4
Staff were friendly	4.0	3.8	4.0	0.4
Staff were knowledgeable	4.0	3.7	4.0	0.5
Staff were enthusiastic about careers	4.0	3.6	4.0	0.7
Counselors were helpful	4.0	3.1	3.0	1.0
<u>Activities</u>				
Project activities help students to understand	4.0	3.7	4.0	0.5
Enough time was allotted for projects	4.0	3.5	4.0	0.8
Enough time was allotted for audience participation	4.0	3.6	4.0	0.7
Acitivities gave practical experience related to transportation	4.0	3.6	4.0	0.5
Project activitites included competition	3.0	3.2	3.0	0.8
<u>Other</u>				
Life in dormitory was fun	3.0	2.8	3.0	0.9
Food in dining hall was delicious	2.0	1.8	2.0	0.9
Number of speaker was appropriate	4.0	3.3	4.0	1.0
Number of field trips was appropriate	4.0	3.3	3.5	0.9
Number of projects was appropriate	3.0	3.3	3.0	0.6
Evening activities beneficial	3.0	2.8	3.0	1.1
Sports/rec activities were fun and worthwhile	3.0	3.2	3.0	0.7

Evaluation Results - 2001

Evaluation Table 9.2

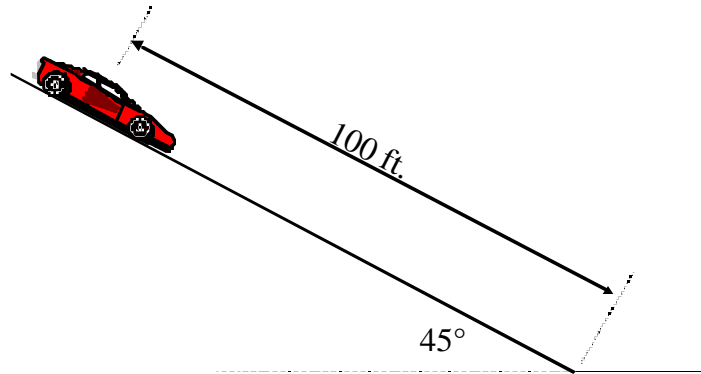
Speakers	t _c	Mean Δ	t	S
Speaker were organized	1.75	(0.30)	(1.29)	0.23
Academically challenged by activities	1.75	(0.20)	(0.49)	0.42
Speakers responded well	1.75	0.48	2.34	0.20
	1.75	1.08	1.92	0.56
Staff				
Staff were interested in awareness	1.75	0.18	0.94	0.19
Staff were helpful	1.75	0.15	0.68	0.23
Staff encouraged students	1.75	0.38	1.45	0.26
Staff available for questions	1.75	0.26	1.27	0.21
Staff were friendly	1.75	0.55	2.21	0.25
Staff were knowledgeable	1.75	0.17	0.74	0.22
Staff were enthusiastic about careers	1.75	0.08	0.32	0.26
Counselors were helpful	1.75	1.08	3.19	0.34
	1.75	1.11	4.60	0.24
Activities				
Project activities help students to understand	1.75	0.60	1.62	0.37
Enough time was allotted for projects	1.75	0.07	0.19	0.37
Enough time was allotted for audience participation	1.75	0.44	1.25	0.35
Acitivities gave practical experience related to transportation	1.75	0.44	1.09	0.40
Project activitites included competition	1.75	0.02	0.06	0.41
	1.75	1.10	3.11	0.35
Other				
Life in dormitory was fun	1.75	0.11	0.30	0.35
Food in dining hall was delicious	1.75	(1.18)	(3.53)	0.33
Number of speaker was appropriate	1.75	0.05	0.15	0.33
Number of field trips was appropriate	1.75	(0.31)	(1.01)	0.31
Number of projects was appropriate	1.75	0.04	0.11	0.32
Evening activities beneficial	1.75	(0.11)	(0.26)	0.41
Sports/rec activities were fun and worthwhile	1.75	(0.33)	(1.23)	0.27
	1.75	0.92	2.81	0.33

Post-test

1. List and describe as many different career paths in transportation as you can in the time allotted. You may use examples where helpful.
2. List and describe as many different transportation modes and their providers as you can in the time allotted.
3. Given a car sits on the incline shown below, find its velocity when it reaches the bottom of the incline.
4. What are mathematical models? Give 3 examples of them.
5. Describe in detail at least one activity from each of the following categories (4 total):
 - Highway transportation
 - Air transportation
 - Public transportation
 - Intermodal transportation
6. A searchlight situated on a straight coast has a range of 43 mi. A ship sails on a line parallel to the coast and 15 mi. from it. What is the distance covered by the ship while it remains within range of the light? What angle is subtended at the light by a line connecting the extreme positions of the ship?
7. List the steps necessary for you to enter college.
8. What are your career goals?
9. Indicate the degree to which you have an interest in a career in transportation by circling the item that best describes your interest right now.
 - a I am certain that I will follow a career in transportation
 - b I am pretty sure that I will follow a career in transportation
 - c I may follow a career in transportation
 - d I am unsure
 - e Probably not
 - f Absolutely not!
10. Describe the two fundamental purposes of surveying.

Post-test

1. List and describe as many different career paths in transportation as you can in the time allotted. You may use examples where helpful.
2. List and describe as many different transportation modes and their providers as you can in the time allotted.
3. Given a car sits on the incline shown below, find:
 - a) its velocity when it reaches the bottom of the incline
 - b) its kinetic energy at the bottom of the incline (weight of car is 4,000 pounds)



4. What are mathematical models? Give 3 examples of them.
5. Describe in detail at least one activity from each of the following categories (4 total):
 - Highway transportation
 - Air transportation
 - Public transportation
 - Intermodal transportation
6. A searchlight situated on a straight coast has a range of 43 mi. A ship sails on a line parallel to the coast and 15 mi. from it. What is the distance covered by the ship while it remains within range of the light? What angle is subtended at the light by a line connecting the extreme positions of the ship?
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 - a I am certain that I will follow a career in transportation
 - b I am pretty sure that I will follow a career in transportation
 - c I may follow a career in transportation
 - d I am unsure
 - e Probably not
 - f Absolutely not!
10. Describe the two fundamental purposes of surveying.

Appendix 10.
Sponsors

Sponsors

The following provides a narrative description of the types of support provided by our partners.

University of Missouri-Rolla

Provided all overhead costs (approximately \$13,500 - see final budget for exact amount)

Center for Infrastructure Engineering Studies

Provided \$15,000

Burns & McDonnell

Hosted the group at their facility for lunch. Costs to them include three hours of time from four engineers (three project engineers and one vice president) plus cost of pizza and drinks for 25. This does not include preparation costs for the visit.

Sverdrup Civil

Hosted the group at their facility and arranged a field trip. Costs to them include 8 hours of time from three to five engineers. In addition, four hours of time plus preparation time for its manager in charge of diversity.

Missouri Department of Transportation

Provided speakers for several sessions and hosted two field trips. This involved at least 15 different engineers at various levels spending anywhere from four to eight hours on the program.

Federal Highway Administration

Hosted the group and sent Missouri Division Administrator to closing luncheon - costing from 4 to 8 hours of time for him.

CFI

Hosted the group for a full day at its Joplin facility. This cost 8 hours of the President and CEO's time plus support staff and lunch for 25.

Chicago Regional Transit Authority

Provided two upper level managers (both PhD's) to give tours of the transit operations center, transit stations and rail yards - spending a total of approximately 12 hours with the group.

BNSF

Provided a one hour tour by the manager of the Corwith facility in Chicago.

Others

There are myriad others who travelled to Rolla or hosted the group for tours (FAA's Stephanie Webb spent at least eight hours of her time helping us plus travel and hotel expenses; FAA provided a tour of Lambert field's Air Traffic Control Tower; Bi-State Development's tour involved several personnel spending hours hosting the group; TWA provided a tour of its Training Center; and, other invited speakers).

Appendix 11.
Marketing Materials

Summer Transportation Institute 2001

THE PROGRAM

The STI curriculum provides educational opportunities for its students in math and science, computers and critical areas of transportation such as highway design, transportation of people and cargo, intermodalism, laws, regulations, safety, environmentalism and career opportunities. Students are exposed to career opportunities in transportation, university life, leadership and team building activities, and a series of lectures, seminars, hands-on laboratories and field trips.

OBJECTIVE

The purpose of the STI isto provide an educational experience for rising 11th and 12th grade high school students which explores all aspects of the transportation industry and its role in our society.

ELIGIBILITY

Applicants must:

- Be in the 11th, or 12th grade for the 2001-2002 school year.
- Have a cumulative grade point average of 3.0 on a 4.0 scale (minimum).
- Have an interest in Engineering, Science, Transportation, or Technology base career.

The selection team will also consider the geographical location of applicants to ensure representation from all regions of the State.

ACCOMMODATIONS

Participants will stay in the Thomas Jefferson Residence Hall and will dine in the University Cafeteria, except for special functions, such as field trips. Course notes and laboratory supplies will be provided as will access to the University's computer facilities and Library. Participants will receive a certificate of completion and a course T-shirt.



June 24th to July 27th

BENEFITS

Twenty (20) rising eleventh and twelfth grade students will receive full scholarships, worth approximately \$6,000, to participate in the four-week summer program. Scholarships includes the following:

- Fees
- Workshops and Handouts
- Room and Board
- Facility Usage, Lab fees
- Equipment and Supplies
- Travel (Field Trips)
- 3 credit college course

OUTCOMES

The Institute's curriculum is designed so that upon its completion students will have been exposed to:

- Various career alternatives in transportation
- The transportation modes and their providers
- Planning, design, construction and operation of transportation facilities
- The interactions among the various modes
- Major environmental and social issues facing tomorrow's transportation professional
- The need for sustainable development
- Math and physics in transportation design and analysis
- Simple transportation-related calculations
- The Internet - know how to access it, to find information on it and to use it.

CHECKLIST

- Completed Application Form
- Letter of recommendation (teacher or counselor)
- Essay
- Unofficial transcripts

**Check out our Web Site at:
www.umr.edu/~spring/sti/**

Sponsored by U.S. Department of Transportation & UMR

**2001 Summer Transportation Institute Program
FOR SECONDARY SCHOOL STUDENTS**

APPLICATION FORM

Name: _____ SS# _____ Gender _____

Address: _____

Parents/Guardian: _____

Address (if different) _____

Telephone: (Home) _____ (Work) _____

School (Fall 2001) _____

School Address _____

Guidance Counselor _____

Telephone _____ Fax _____ e-mail _____

Standardized Test Scores Enclosed: _____ Grade Point Average: _____

During the 2001-2002 School Year I will be in the: (Check One)

_____ 11th Grade _____ 12th Grade

List your math and science class for the Fall Semester 2001

Math _____ Science _____

Career Interest (Check One) News Media Information (used to circulate information to the local media)

_____ Accounting	Local Radio	Local Newspaper
_____ Architecture	Call Letters: _____	Name: _____
_____ Architecture	Address: _____	Address: _____
_____ Business	_____	_____
_____ Criminal Justice	Phone Number _____	Phone Number _____
_____ Computer Science	Fax Number: _____	Fax Number: _____
_____ Environmental	_____	_____
_____ Law	Local Television	Local Media
_____ Marketing	Call Letters: _____	Name: _____
_____ Scientific Research	Address: _____	Address: _____
_____ Engineering	_____	_____
_____ Technology	Phone Number _____	Phone Number _____
_____ Construction	Fax Number: _____	Fax Number: _____
_____ Transportation	_____	_____

Awards/Achievements/Organization: _____

Indicate T- Shirt Size: S ____ M ____ L ____ XL ____ XXL ____ Other ____

Required Essay: Describe your interest in transportation, your career goals, and how the Summer Transportation Institute can assist you in reaching them. Your essay must be typed, and can not be more than one (1) page.

Submit application prior to June 1, 2001 to:

**Gary S. Spring, Director
Summer Transportation Institute Program
The University of Missouri-Rolla
208 Butler-Carlton Hall
Rolla, Missouri 65409-0030**

UMR - STI Brief**THE PROGRAM**

- **USDOT-funded, 5 weeks long, in residence**
- **Purpose:** to expose 11th and 12th grade students to a variety of aspects of the transportation industry
- **Curriculum includes**
 - **seminars** on career opportunities in transportation, university life and technical topics in transportation; leadership and team building activities;
 - **lectures** on a variety of technical and non-technical topics,
 - **hands-on laboratories** (e.g. students build and race magnetically levitated trains, design and test highway bridges using bridge design software)
 - **field trips** (e.g. TWA's training simulator, St. Louis public transit operations center, Springfield's traffic operations center, Boeing's airplane fabrication facility, Alton Lock and Dam, MoDOT's laboratories, Lambert air traffic control centers)
 - **evening activities** (e.g. a ropes course, pool parties, magic show)
 - **3 credit college English course**

ELIGIBILITY

- **Grade level:** 11th, or 12th grade for the 2001-2002 school year.
- **Academics:** cumulative grade point average of 3.0 on a 4.0 scale (minimum).
- **Interest:** Engineering, Science, Transportation, or Technology based career.

ITEMS PROVIDED

- **Accommodations:** Thomas Jefferson Residence Hall and will dine in the University Cafeteria, except for special functions, such as field trips.
- **Academic resources:** Course notes and laboratory supplies will be provided as will access to the University's computer facilities and Library.
- **STI T-shirt.**

BENEFITS

- **Fees**
- **Workshops and Handouts**
- **Room and Board**
- **Facility Usage, Lab fees**
- **Equipment and Supplies**
 - **Travel** costs for field trips
 - \$25 per week **stipend**
 - **Credit** for a 3 credit hour college-level history course

CHECKLIST

- Completed **Application Form**
- **Letter of recommendation** (teacher or counselor)
- Essay stating student's interest in transportation
- Unofficial **transcripts**

WEBSITE:

<http://www.umar.edu/~spring/sti/>

Deadline for application package: June 1, 2001

Mail to:

Dr. Gary S. Spring, Department of Civil Engineering, UMR, Rolla, MO 65409-0030
email: spring@umar.edu; phone: 573-341-6286

MEMORANDUM

TO: High School Student
SUBJECT: Summer Transportation Institute
DATE: September 21, 2001
FROM: Gary S. Spring, Director

The University of Missouri-Rolla will host the 2001 Summer Transportation Institute for secondary school students on June 24 - July 27, 2001. The objectives of the Institute are to motivate students to pursue careers in the transportation field through a series of academic and practical experiences, and to enable them to pursue those careers by providing math and science enrichment activities. The Federal Highway Administration-sponsored program is open to students attending public and private secondary schools across the State of Missouri. The five-week residence program is an extremely intense and structured learning opportunity for youth in the secondary school systems of Missouri.

The curriculum exposes students to new frontiers and adventures such as highway design, transportation of people and cargo, intermodalism, laws, regulations, safety, environmentalism and career opportunities. In addition, students participate in computer training sessions, academic enhancement activities, field trips, student projects and will receive college credit for a three credit history course.

A maximum of twenty (20) rising eleventh and twelfth grade students will receive full scholarships to participate in the five-week summer program. Scholarships will include the following:

- Tuition
- Room and Board
- Equipment and Supplies
- Lab Fees
- Workshops and Handouts
- Facility Usage
- Travel (Field Trips)
- College tuition for a 3 credit history course

I have sent the attached application form to public and private secondary schools across the state, former STI attendees and Missouri high school students with an expressed interest in engineering. Please consider spending part of your summer with us as part of this valuable program. Complete the enclosed application package and return it to me.

If you are chosen, we will notify you no later than June 8, 2001. The following criteria will be used in selecting scholarship recipients:

1. Students must be in the *11th, or 12th* grade for the 2001-2002 school year.
2. Should have completed Pre-Algebra.
3. Cumulative grade point average 3.0 on a 4.0 scale (minimum).
4. Expressed interest in Engineering, Science, Transportation, or Technology-based career.
5. Letter of recommendation from high school principal, counselor or teacher.
6. Standardized Test Score(s).
7. Essay. (Why student wants to participate in the program and how the STI can assist in meeting individual career goals.)
8. Transcript

Please consult with your science, mathematics and technology education teachers for the names of potential students who may qualify for the Institute.

Return all applications to the address below not later than May 15, 2001:

Gary S. Spring, Director
Summer Transportation Institute Program
The University of Missouri-Rolla
208 Butler-Carlton Hall
Rolla, Missouri 65409-0030

Thank you for your assistance.

GSS

enclosures

MEMORANDUM

TO: Former STI Participant
SUBJECT: Summer Transportation Institute
DATE: September 21, 2001
FROM: Gary S. Spring, Director

The University of Missouri-Rolla will once again host the 2001 Summer Transportation Institute for secondary school students on June 24 - July 27, 2001. The objectives of the Institute, as you know, are to motivate students to pursue careers in the transportation field through a series of academic and practical experiences, and to enable them to pursue those careers by providing math and science enrichment activities. The program is sponsored by the Federal Highway Administration (FHWA) and is open to students attending public and private secondary schools across the State of Missouri.

The curriculum will expose students, as were you, to new frontiers and adventures such as highway design, transportation of people and cargo, intermodalism, laws, regulations, safety, environmentalism and career opportunities. In addition, students will participate in computer training sessions, academic enhancement activities, field trips, student projects and will receive college credit for a three credit history course.

Twenty (20) rising eleventh and twelfth grade students will receive full scholarships to participate in the five-week summer program. Scholarships will include the following:

- Tuition
- Room and Board
- Equipment and Supplies
- Lab Fees
- Workshops and Handouts
- Facility Usage
- Travel (Field Trips)
- College tuition for a 3 credit history course

I have sent the attached application form to public and private secondary schools across the state, former STI attendees and Missouri high school students with an expressed interest in engineering. Please share the enclosed application package with anyone that you feel would benefit from this program and urge them to apply.

Notification of scholarship award will be made by the Summer Transportation Institute for each of the selected students no later than June 8, 2001. The following criteria will be used in the selection of scholarship recipients:

1. Students must be in the *11th, or 12th* grade for the 2001-2002 school year.
2. Should have completed Pre-Algebra.
3. Cumulative grade point average 3.0 on a 4.0 scale (minimum).
4. Expressed interest in Engineering, Science, Transportation, or Technology-based career.
5. Letter of recommendation from high school principal, counselor or teacher.
6. Standardized Test Score(s).
7. Essay. (Why student wants to participate in the program and how the STI can assist in meeting individual career goals.)
8. Transcript

Please consult with your science, mathematics and technology education teachers for the names of potential students who may qualify for the Institute.

Return all applications to the address below not later than May 15, 2001:

Gary S. Spring, Director
Summer Transportation Institute Program
The University of Missouri-Rolla
208 Butler-Carlton Hall
Rolla, Missouri 65409-0030

Thank you for your assistance.

GSS

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MEMORANDUM

TO: Secondary School Guidance Counselors
SUBJECT: Summer Transportation Institute
DATE: September 21, 2001
FROM: Gary S. Spring, Director

The University of Missouri-Rolla will host the 2001 Summer Transportation Institute for secondary school students on June 24 - July 27, 2001. The objectives of the Institute are to motivate students to pursue careers in the transportation field through a series of academic and practical experiences, and to enable them to pursue those careers by providing math and science enrichment activities. The Federal Highway Administration-sponsored program is open to students attending public and private secondary schools across the State of Missouri. The five-week residence program is an extremely intense and structured learning opportunity for youth in the secondary school systems of Missouri.

The curriculum exposes students to new frontiers and adventures such as highway design, transportation of people and cargo, intermodalism, laws, regulations, safety, environmentalism and career opportunities. In addition, students participate in computer training sessions, academic enhancement activities, field trips, student projects and will receive college credit for a three credit history course.

A maximum of twenty (20) rising eleventh and twelfth grade students will receive full scholarships to participate in the five-week summer program. Scholarships will include the following:

- Tuition
- Room and Board
- Equipment and Supplies
- Lab Fees
- Workshops and Handouts
- Facility Usage
- Travel (Field Trips)
- College tuition for a 3 credit history course

I have sent the attached application form to public and private secondary schools across the state, former STI attendees and Missouri high school students with an expressed interest in engineering. Please submit at least two (2) two student candidates for the Summer Transportation Institute

Scholarship. Please complete the enclosed application package for each of the students.

We will notify successful applicants to the Summer Transportation Institute no later than June 8, 2001. The following criteria will be used in selecting scholarship recipients:

1. Students must be in the *11th, or 12th* grade for the 2001-2002 school year.
2. Should have completed Pre-Algebra.
3. Cumulative grade point average 3.0 on a 4.0 scale (minimum).
4. Expressed interest in Engineering, Science, Transportation, or Technology-based career.
5. Letter of recommendation from high school principal, counselor or teacher.
6. Standardized Test Score(s).
7. Essay. (Why student wants to participate in the program and how the STI can assist in meeting individual career goals.)
8. Transcript

Please consult with your science, mathematics and technology education teachers for the names of potential students who may qualify for the Institute.

Return all applications to the address below not later than May 15, 2001:

Gary S. Spring, Director
Summer Transportation Institute Program
The University of Missouri-Rolla
208 Butler-Carlton Hall
Rolla, Missouri 65409-0030

Thank you for your assistance.

GSS

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