

2008 Transportation Design Challenge for Connecticut High School & Middle School Students



**Entry Deadline:
May 15, 2008**



Get Your Kids Psyched About Engineering and Technology!

Enter the 2008 Transportation Design Challenge for Connecticut High School and Middle School students and **your team could win big \$\$\$\$.**

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Your students can learn a lot inside and outside the classroom. When they roll up their sleeves and tackle a project in their community, that's when they really learn about and understand the world around them. That's what the Transportation Design Challenge is all about.

As Connecticut cities and towns focus on smart and responsible growth, more livable communities, as well as fostering stronger ties with the surrounding areas, the Challenge is to consider transit as the backbone of this growth. The Challenge to Connecticut High School students is to research and design a Transit-Oriented Development (TOD) project near their home community that offers families a safe, healthy, and economically secure place to live, work, and play.

The Challenge is open to any Connecticut Middle Schooler or High Schooler – and there is no fee to enter. The Challenge encourages entries from any public, private or home school.



The idea is simple. Three students, working as a team, put their heads together to propose a transportation oriented development. Students may seek advice from teachers, DOT volunteers and other consultants. The team will analyze the issues, move toward an innovative solution, refine the solution...and have fun doing it!

Your kids get experience in a real scientific process. Most of today's engineers are not lone geniuses, but team members, working together to solve practical problems. This Challenge requires your students work in a team and that each member contribute his or her own unique talents. They go through the same steps that engineers do – identifying the problem, analyzing it, exploring possible solutions and testing the validity of their assumptions.

EVERYTHING YOU NEED TO GET STARTED IS RIGHT HERE...

Spend a few moments with this booklet. Everything you need is here: entry forms, contest rules, tips for coaching your team and more. This will be one of the best learning experiences your kids ever have. The Registration form submittal deadline has been extended, so get your kids started now. And get them psyched about engineering and technology! **GOOD LUCK!**

Helpful Tips for Coaches

THE COACH AS FACILITATOR

Who can be a coach?

- Anyone over the age of 18 years old.
- Teachers, parents or guardians.

What are the coach's responsibilities?

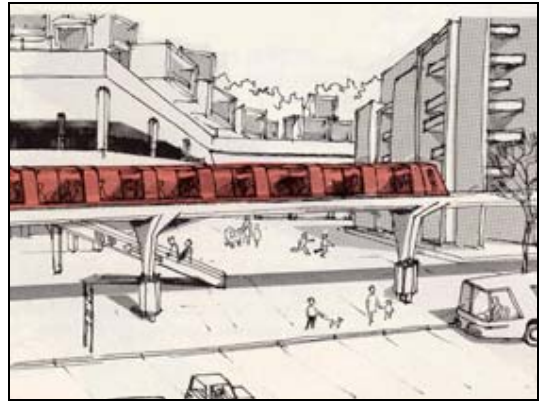
- Facilitate one or more teams.
- Sign the Entry Form and verify the originality of the work completed and compliance with the rules.
- Chaperone the team if the team is selected as a Finalist.

What are the coach's primary objectives?

- Facilitate brainstorming sessions to help identify and narrow ideas for topics.
- Help teams identify what makes the transportation issue a "community problem." How are people truly affected? Is the problem ongoing?
- Remind teams that engineering and technology must play a role in their solution
- Guide the team to use sound scientific and engineering methods.

How can the coach assist the team?

- Create meeting schedules and set work deadlines.
- Suggest resources for researching.
- Review the final entry to check for grammatical errors, clarity and compliance with the rules.



What is the coach prohibited from doing?

- Conducting research on behalf of the team.
- Creating any section of the entry.

Why brainstorming?

- Young people usually need help identifying and narrowing ideas for topics.
- It promotes creativity.
- It draws out the participation of all the team members or a whole class.

How does a coach facilitate a session?

- Encourage kids to think beyond the obvious.
- Allow only one person to speak at a time.
- Remind the group that arguments waste time and are counter-productive.
- All comments should be positive. Do not allow censorship.
- Keep a running list of ideas and then eliminate ideas the group decide are not useful.
- Conduct more in-depth discussions on the most promising ideas.

Entry Guidelines

A complete entry consists of 5 sections: 4 written and 1 visual. Entries must be postmarked by May 15, 2008.

THE WRITTEN ENTRY — SECTIONS 1 THROUGH 4

Section 1: The Issue (Max. 1 page)

1. What are some of the issues identified by the team?
2. How did the team identify the issues?
3. Why are the issues important to the team?
4. How does TOD affect the community – good/bad?
5. What will happen if the TOD is not considered?

Section 2: Research (Max. 3 pages)

1. What kind of resources did the team use (people, organizations, Internet, etc.)?
2. What information did the team gather for understanding the issues?
3. If appropriate, the team should present its research results in charts and graphs.
4. How did the team's research help to formulate a proposed TOD using engineering and technology?

Section 3: Analysis (Max. 3 pages)

1. What problems or variables did the team consider?
2. What were the results of any polling or surveying?
3. Was the TOD supported by the research or did the team need to change the proposed TOD?

Section 4: The Solution (Max. 3 pages)

1. Show the engineering and technology used and describe how the TOD works in theory.
2. If the team had unlimited resources and time, how would it make its TOD a reality in the community?
3. What major challenges must the team overcome to make the proposed TOD a reality?

THE VISUAL PRESENTATION — SECTION 5

PowerPoint Presentation on CD

(No more than 20 slides maximum)

- Presentation will be judged on content and relevance.

THE CHALLENGE RULES

- The total written entry may not exceed 10 pages (single-sided printing, with one-inch margins).
- Use only 8-1/2" x 11" white, unlined paper.
- Each page must be numbered and have a section title as shown above.
- Text must be printed 10-14 characters per inch, 12-point type, double-spaced.
- Use a single staple in the upper left-hand corner to fasten the pages. (Do not use covers, binders, folders, etc.)
- A cover page should not be included.
- **The Official Registration Form must be included with the entry.** Entries are judged anonymously and will be assigned a reference number for identification.
- Submit three copies and the original (total of four) for judging. Please keep a copy for your records.



TEAM RULES

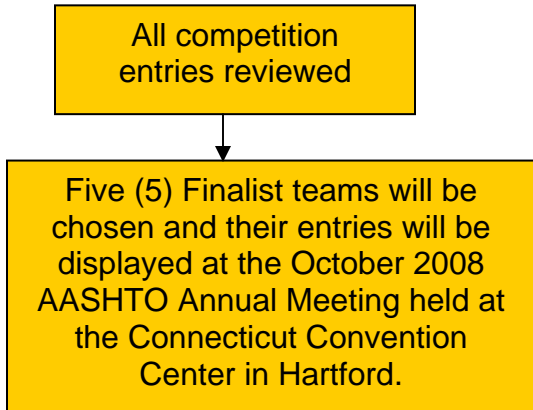
- Each team must have three student team members and a coach (see “Coach’s Rules” below).
- All team participants must be enrolled in Middle School or High School in Connecticut during the 2007-2008 school year.
- Team members must be students in good academic and behavioral standing.
- Team members are limited to participating on one team project.
- Children of employees who have participated in the development of the competition, and judges are not eligible to be team members.

COACH’S RULES

- All student teams must have one adult who will function as a coach for the team.
- An individual may participate as a coach for one or more teams.
- Team coaches must be at least 18 years old.
- The coach will be required to sign an affidavit (on the entry form) stating that the entry is original and has been independently developed by the student members of the team.



The Judging Process



- All entries received are assigned a number and are screened for compliance to the rules.
- Each entry is evaluated anonymously based on the stated criteria and assigned a numerical score by each judge.
- Entry evaluators are collected and an aggregate score is created based on the sum of the judges’ numerical scores.
- The top entries with the highest aggregate scores are selected as Finalists.
- All teams receive a feedback form with comments from the judges.
- Five (5) Finalist teams will be notified and posted on the TRAC website by June 20, 2008.

FINALIST SELECTION

- Finalists are given a “Kit” with much of the materials needed to build a tabletop 3D scale model of their entry.
- Finalists will bring their model to the AASHTO Annual Meeting on Oct. 18, 2008 for final judging.
- A seven (7) minute oral presentation from each Finalist team will be required.

EVALUATION CRITERIA

In addressing the specific issues of the design challenge, submissions will be evaluated on the following:

- Cleverness.
- Demonstrating they have created a transportation system that accommodates the transportation needs for all users.
- Clear and easily comprehensible design.
- Originality.

Criteria

Each entry will be evaluated based on creativity, innovation, scientific accuracy, relevance to the community, feasibility and clarity of communication. The following categories will be used to score the entries:

1. Creativity: The demonstration of imagination, problem-solving techniques, artistic skills, etc.

2. Innovation: An assessment of the proposed solution's uniqueness, the use of engineering and technology to solve the problem and the potential impact of the solution on the community or in general.

3. Scientific Accuracy: An assessment of the application of scientific laws and theory and an evaluation of the methods used to research the topic and to test the proposed solution.

4. Relevance to the Community: Include importance to quality of everyday life.

5. Feasibility: An assessment of the likelihood that the solution will work as presented based on relevant economic, political and social issues. Higher points will be given to plans that are developed fully versus plans that need adjustments to succeed.

6. Clarity of Communication: Includes adherence to the entry guidelines (written and visual), as well as grammar, writing skills, organization of the facts and data, etc. Project should show a coherent display and presentation.

Points

Each entry is assigned a numerical score by each judge as follows:

- Creativity: 18 points
- Innovation: 18 points
- Scientific Accuracy: 14 points
- Relevance to the Community: 22 points
- Feasibility: 14 points
- Clarity of Communication: 14 points

A complete entry consists of five sections: four written and one visual.

The written entry has:

- No more than 10 pages (single-sided) of white, unlined 8-1/2" x 11" paper.
- All the pages numbered.
- Typed pages, 10-14 characters/inch, 12-point type, double-spaced.
- One-inch margins on all sides.
- A single staple in the upper left-hand corner.

The written entry includes sections titled exactly as follows:

- Section 1: The Issue
- Section 2: Research
- Section 3: Analysis
- Section 4: The Solution
- Section 5: The Visual

The visual presentation is the following:

- PowerPoint Presentation on CD (no more than 20 slides maximum)

The team and coach have:

- Thoroughly proofread, organized and reviewed the entry for compliance.
- **Included the original and three copies of the written and visual presentation sections of the entry (four total).**
- Kept one copy of the written and visual sections of the entry.
- Included one copy of the entry form, signed by all members and the coach.
- Postmarked the entry no later than May 15, 2008.
- Sent the entry to:

2008 Transportation Design Challenge
c/o James Moffett
Connecticut Department of Transportation
Division of Research
280 West Street
Rocky Hill, CT 06067-3502

Award-winning Finalists will be selected by a jury that will determine the award winners and honorable mentions.

Schedule & Deadlines

Thursday, May 15, 2008

Deadline for competition submissions (postmarked)*.

Friday, June 20, 2008

Finalists notified and posted on the ConnDOT TRAC Web site.

Saturday, October 18, 2008

Display and judging of Finalist entries during the week of the 2008 AASHTO Annual Meeting in Hartford. First, second, third place and Honorable Mention will be selected at this Finalist meeting. Model and visual display will be judged in person at this time.

Sunday, October 19, 2008

Awards Breakfast.

Role of Engineering Mentor

- Experienced person paired with a student team
- Provide input and teaching advice
- Help with project planning
- Establish deadlines and goals
- Provide reality check
- Help with understanding rules
- Let the students do the work

Role of Teacher

- Facilitator and advisor
- Organize the team within the school
- Maintain contact with the engineer mentor
- Keep students on task

Role of Students

- Actual creators of the "TOD"
- All team members provide input
- Agree on compromise when there is disagreement
- Have FUN!!!!!!!!!!

Registration Form

Send entries by May 15, 2008 to:

**2008 Transportation Design Challenge
c/o James Moffett
Connecticut Department of Transportation
Division of Research
280 West Street
Rocky Hill, CT 06067-3502**

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Please neatly write in the fields.

APPLICANT NAME(S): 1. _____

2. _____

3. _____

APPLICANT SCHOOL: _____

ADVISOR NAME: _____

ADDRESS: _____

ADVISOR PHONE NUMBER: _____

ADVISOR EMAIL: _____

GRADE: _____