Pedestrian Rail Safety Symposium

June 22, 2010

Sponsored by the NU Transportation Center and the City of Lake Forest
Executive Summary

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Introductory Remarks

My name is Ian Savage, I am a longtime faculty member of the Department of Economics and the Transportation Center at Northwestern University.

Thank you for coming. The purpose of today is to be a working meeting, not a parade of talking heads. We have a remarkable collection of experience and talent here today, and we want to put you to work.

Northwestern’s Transportation Center has been around since 1954, and prides itself on its interdisciplinary approach to important contemporary questions on public policy. One of our activities is hosting regular seminar series. One of these is our “Sandhouse Gang” seminar series on railroad topics that appeal to faculty, students and industry professionals. Among the members of the Sandhouse Gang is Administrator Szabo of the Federal Railroad Administration.

We were approached by the City of Lake Forest who had suffered a series of pedestrian deaths around the railroad. In part Lake Forest recognized that the northern suburbs were witnessing a phenomenon that had been faced by the western and northwest suburbs for some time, and wanted to discern some best practice and experience of what has worked and what hasn’t worked to ameliorate the risks.

But in part, Lake Forest discerned that there were two common features of some recent tragedies that introduce a new contemporary wrinkle to a decades’ old debate.

The first is that the victims were talking on mobile phones moments prior to stepping in front of a train. I wasn’t there, so I can’t say how much this distraction contributed to the incidents, but it fits into a debate that Secretary LaHood has emphasized in the past year. Be it auto drivers speaking on the phone, train engineers text messaging, pedestrians with i-pods, or pilots using their laptops or having non-pertinent conversations, distraction is a big issue for the US Department of Transportation and the National Transportation Safety Board.

The second is pedestrians are being caught out by unexpected things – Amtrak trains that show up at seemingly random times, freight trains running on the center track, skip-stop express trains running just ahead of a stopping train, the “second train” at a crossing. These problems are decades old, but there is now a debate in this country about high-speed rail. These high-speed trains are still going to have to snake their way through the suburbs before accelerating through the cornfields. How are we going to accommodate these high-speed trains in our flatlands where commuters access their suburban platforms on the level?
Both of these are new aspects that mean that there has to be change from the “same old, same old” approach. Indeed I have concerns whether the “same old, same old” is really doing its job. In the past forty years, though a combination of engineering upgrades, public education and enforcement we have reduced the risk to motor vehicles at grade crossings by 90% or more. However, we have not had the same success with pedestrian and trespassing fatalities.

So that is your task this afternoon. After some introductory remarks we are going to split into three groups, each of which will consider one of the “three E’s”:

- Education and communication
- Engineering and design
- Enforcement

Basically these will be brainstorming sessions. We want you to bring your experience and vision to suggest initiatives and new ideas. No idea should be considered too outlandish or silly. We will have rapporteurs in each session who will be taking notes and bring back to us as a group, later this afternoon, the findings and suggestions. We will also be writing up our deliberations to share with a wider audience than those who can be here this afternoon.

Finally, I would like to publicly thank Lake Forest for having the public spiritedness to recognize that the tragedies that have occurred in and near their community have wider public policy implications that affect all communities in Chicago area and in those communities be they in Florida, Boston or Southern California where pedestrians and trains mix.
Rail Pedestrian Safety
Education and Communication
Break out Session

June 22, 2010

The communication challenge:

• People have become desensitized to the risk around railroads
• People do not fully appreciate that the dangers of distraction are not just physical distraction but mental process degradation as well
• Regular commuters are used to routine and get caught out by unexpected events such as the “second train”, express trains and irregular workings
• The riskiest times of day might be when people least expect it, such as the late afternoon after-work hour
Participants were divided on whether to find common cause with anti-distraction campaigns in other transportation modes:

- There are advantages of economies of scale and “political clout,” but . . .
- The degree of lethality is much greater for railroad incidents compared with highway incidents, and
- The populations most at risk around the railroad can be targeted very specific both geographically and by other demographics

Search for effective message delivery:

- There was a consensus that drivers’ education classes are still the primary vehicle for getting to the largest number of people in an efficient way
- While it targets a specific age group which, in general, is at low risk, it is the one “common experience” for the entire population
- Currently, rail pedestrian issues do not get the attention they deserve in drivers’ education
Public Service Announcements:

- While the “traditional PSA” is dead, there are now alternative outlets that may be more effective
- Consensus view that “video is where it is at” rather than posters/print ads
- Need music to back up the visual images, with catchy tunes and lyrics. We eagerly await the “Metra Rap”

There are two types of videos, both of which have their place:

- The “shocking videos” such as views from the cab showing risky behaviors
- There was a preference for videos showing “realistic situations” rather than “preaching videos.” An example is a recent Operation Lifesaver video showing a business executive caught up in multitasking, bumping into fellow pedestrians and then inadvertently stepping in front of a light rail vehicle
There are new channels for PSAs:

- Video monitors at grocery store checkouts that are in communities proximate to railroad lines
- Video screens on station platforms
- In elevators in office buildings near stations
- On-vehicle announcements, videos clips (if vehicle is equipped) and display boards on Pace buses that connect to Metra stations

Enlist other parties to disseminate messages:

- Cell phone and data providers may be encouraged to carry “safe behavior” messages
- Employers who provide the smart phones and other devices that distract their employees, often on work related matters, during the commute
Distraction adds to existing challenges:

- Some passengers are in a hurry if they arrive late at the station or wish to get home quickly
- Express trains and freight trains, and trains on a middle track, catch pedestrians unawares if they are expecting a stopping passenger train
- Regular users can be surprised by trains running off schedule
- While Metra express trains have a consistent schedule, this is not true for some Amtrak and freight trains
- Extreme winter weather means that passengers wear clothing that limits their hearing and field of vision
Chicago has a challenging legacy:

- It is one of the largest commuter rail systems in the country
- It is a busy hub for freight trains
- Only the Metra Electric has “high level” platforms
- Inconsistency of left-hand versus right-hand running on some lines confuses infrequent users
- Chicago is on the edge of the prairie with limited natural grade separation
- There is limited constructed grade separation outside of City of Chicago limits except in certain corridors and municipalities
- Station access is from highway-rail grade crossings and mid-station crosswalks

Current design encourages a lax attitude:

- Low level platforms, island platforms, mid-station crosswalks and at-grade stations that parallel surface streets and commercial strips incorrectly signal to pedestrians that the boundary between the “safe” platform and the “dangerous” right of way is somewhat blurred
- The engineering and design challenge is to take this legacy - which is unlikely to change - and design ways to foster in pedestrians minds that there is a distinct difference between the track and the platform
There is a tension between engineering solutions versus pedestrian responsibility:

- Some participants felt that it is more cost effective to encourage pedestrians to take more personal vigilance and responsibility for their actions rather than adopt costly and inconvenient engineering solutions
- A completely grade-separated solution would lead to higher fares, increased access times and potential closure of some stations
- Nonetheless, many consumer and industrial products have adopted design solutions to lessen the risks to careless users

Changing travel patterns:

- At one time nearly all travel was destined for Chicago. There was little need for passenger facilities on outbound platforms
- The development of suburb-to-suburb travel has led to substantial numbers of people waiting on outbound platforms
- These platforms often lack shelter from the elements let alone ticket, toilet and refreshment facilities
- Is it little wonder that passengers wait on the inbound side and cross to their platform at the last moment
- Provision of duplicate facilities, even basic facilities, may be the most cost effective engineering initiative
Design of mid-station crosswalks:

• A basic design objective is to make sure that pedestrians turn and reconnoiter in both directions before crossing
• Fortunately, Chicago is generally blessed with straight tracks and long sight lines
• Yet many crosswalk are directly in front of station entrances or station houses encouraging people to walk straight ahead without looking
• Crosswalks can be offset from entrances or buildings and have barrier fences (or chicanes) to make people look in both directions

Design of mid-station crosswalks:

• Perhaps the surface of the crosswalk or some other design features (embedded LEDs lights?) can indicate to pedestrians that they have moved away from the safety of the platform to a zone where they have to exercise extra caution
• Perhaps we can borrow from Britain and other countries that have been working on design concerns for at-grade “barrow crossings” at the end of platforms
• These countries have also worked on innovative wording and visual signage to warn users, yet does not increase information overload
Design of mid-station crosswalks:

- Some participants suggested design features such as actively pushing a button to open a barrier to focus users' attention.
- Perhaps very localized jamming devices for electronic or wireless devices can be installed at the crosswalk.
- Closing of crosswalks may have the unintended consequences of encouraging “jaywalking” and the cutting and destruction of mid-track fencing.

Grade crossings have been designed for vehicles not pedestrians:

- Crosswalks on highways have markings to direct or channel the passage of pedestrians.
- However, highway-rail grade crossings are often bereft of channelization for pedestrians. The sidewalk ends at the crossing and pedestrians proceed seemingly randomly.
- The sidewalk and streetscaping might be designed to separate pedestrians from the traffic stream on a adjacent but separate crossing with pedestrian-appropriate warning devices/barriers installed.
Grade crossings have been designed for vehicles not pedestrians:

- Even at places away from stations, barriers on the pedestrian path can visually and physically dissuade users from taking a 90-degree turn to walk down the right of way.
- Grade crossings adjacent to platforms should be designed so that passengers are not encouraged to cut across the track at an angle, or to enter/exit platforms on the track side of warning devices.
- Metra already has some new designs for platform ends that abut highway-rail crossings.

Other station design considerations:

- Is the location of station car parks and the zoning of local commercial businesses such that passengers are not encouraged to cross the tracks at inappropriate places or access platforms in an unsafe manner?
- Should the platform access points be designed vis-à-vis the neighborhood to discourage passengers from thinking that they can access platforms in a random and casual manner?
With today’s technological we should be able to notify users of non-stop trains:

- With the introduction of positive train control and advances in GPS and wireless technology, it should be straightforward to notify pedestrians and waiting passengers that the next train is x minutes away, and to provide a special warning if an express or freight train that is not stopping is approaching.

Institutional constraints limit progress:

- The division in ownership in many locations between the party that owns the track, the owners of the train and the owners of the station is a challenge.
- Legal design constraints increase the cost and outlaw some low cost but effective solutions.
- The fear of lawsuits promotes a culture of doing nothing as opposed to doing something which may be a great improvement but is not guaranteed to be 100% effective.
Trespassing is a perpetual problem:

- The role of engineering in preventing trespass is complex
- Effective prevention of trespass should be informed by knowledge of the motivation for trespass at specific locations
- More fencing at specific places can deter those taking a well-known shortcut, but in other places could serve to provide more “privacy” for those loitering near the tracks to rest or engage in illicit activities
- Clearance of vegetation and other obstructions to clear vision can remove the attraction of the railroad right of way to some trespassers

Suicides are prevalent and hard to prevent:

- Experience in Britain is that erecting strong and continuous fencing has relocated suicides from plain track to grade crossings and station platforms
- There is a literature and researchers (primarily in Montreal) that study how station design can reduce the incidence of suicide
- There is evidence that prompt intervention and referral to health care professionals can prevent suicides
High speed trains may change the game:

- If high speed trains are expected to run at their potential speed within the built-up area rather than decelerating well before they reach Chicago, it seems likely that commuter stations will have to redesigned with high level platforms and pedestrian bridges or underpasses.
- This will confer advantages on corridors that already have high level platforms and grade separation (such as the former Illinois Central main line).

Rail Pedestrian Safety Enforcement Solutions
Break out Session

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Enforcement requires effective education and communication:

- Citizens are resistant to enforcement solutions if they feel that they have not been adequately warned in advance of the risks and unacceptable conduct.
- Courts are resistant to enforce the maximum penalties if they feel that offenders were under-informed about the risks and penalties.

What is the appropriate penalty?

- There may be a backlash if the enforcement process is seen as just a way to generate revenue from penalties.
- Is the penalty of the ticketed person missing their train a sufficient penalty in itself?
- Are alternatives to cash penalties, such as the community service ordinance just approved by the City of Lake Forest more effective and acceptable?
Need to communicate the goal of enforcement:

• Unlike the situation with, say, Driving Under the Influence where a major objective of police action is to remove the impaired driver from the road to protect other road users, the objective here is protect the pedestrian from their own bad judgment