



Towards Zero Deaths (TZD) – Safer Motorcyclists and Highway Workers

by Airton Kohls based on *Towards Zero Deaths: A National Strategy on Highway Safety*

As we enjoy this beautiful time of the year it is paramount to remind ourselves of the importance of road safety. As I was revisiting the document *Towards Zero Deaths: A National Strategy on Highway Safety* (http://www.towardzerodeaths.org/wp-content/uploads/TZD_Strategy_12_1_2014.pdf), I focused on the key area of vulnerable users. We have discussed frequently how pedestrians and bicyclists are susceptible to severe injuries or death when involved in a traffic crash. We should also pinpoint our efforts on the safety of motorcyclists and highway workers. Here are some facts from the aforementioned document.

Motorcyclists

Motorcycles are an increasingly popular and economic transportation choice—the number of registered motorcycles practically doubled in the last 10 years. Based on registered vehicles, motorcyclists have a fatality rate six times that of passenger car occupants. Per mile traveled, motorcyclists are almost 30 times more likely than passenger car occupants to die in a traffic crash and five times more likely to be injured (NHTSA – Traffic Safety Facts 2011). Motorcyclists represent a unique population of the motoring public—they are the only type of road users who can travel at high speeds and on all road types, without the benefit of a vehicle body surrounding them, leaving riders more susceptible to injury in a crash. Enforcement and education campaigns that target motorcyclists can raise awareness of risk-taking behaviors and reduce their occurrence. Speeding, impaired riding and helmet use are common safety issues addressed in these types of campaigns. In 2012, a study from NHTSA demonstrated the need for these types of programs:

- 34 percent of motorcycle riders involved in fatal crashes were speeding, compared to 22 percent for passenger car drivers.
- 27 percent of motorcyclists had a Blood Alcohol Content (BAC) of at least .08 g/dL, slightly higher than the percentage of passenger vehicle drivers.
- Helmets saved over 1600 motorcyclists' lives in 2011 and 700 or more lives could have been saved if all motorcyclists had worn helmets.

Highway Workers

Those who work in the roadway environment are exposed to greater risk of being killed or seriously injured in traffic crashes just by being out on the road longer than most people. In 2014, 669 people, including road users and construction, maintenance, and other highway workers, were killed in work zone traffic crashes according to the National Work Zone Safety Information Clearinghouse. Because police, incident response, and road construction and maintenance activities vary and are intermittent, road users are typically less accustomed to traveling through these types of situations. A multidisciplinary approach

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From the Director

As I write this column on a warm April Wednesday, I have now served as the director of the Tennessee Transportation Assistance Program for a grand total of 110 days. The shift from technical assistance coordinator to director has produced a surprising change in my perspective. My nineteen years with the program have given me great familiarity with TTAP's ongoing training, technical assistance, and technology transfer activities, leading me to believe that this would be an easy transition. What I failed to recognize was the difference between implementing a great plan and assuming responsibility for keeping this plan relevant in the coming years.

With this new perspective, I find myself looking for topics and trends which may impact transportation professionals across the state. Autonomous vehicles are at the top of this list. While technology has advanced to the point that cars can operate without human input in many roadway environments, there are still obstacles that must be addressed before I can count on sleeping all the way from Knoxville to Nashville. I have seen a few news articles lately where auto industry executives identify poorly-maintained, missing, or inconsistent traffic control devices as one of the big problems facing their products. This may be true, but how do we address these issues in a time when transportation funding is not keeping pace with our infrastructure needs? Will the desire (or need) for autonomous vehicles lead to increased funding or a shift in emphasis for transportation agencies? How will technology change our roadways and communities in the future? Only time will tell, but it's not too early to ask these questions.

Many communities and organizations are already changing the way that they view streets and highways. This shift was obvious as I reviewed the technical program for the 2016 annual meeting of the Southern District of the Institute of Transportation Engineers (held earlier this month in Nashville). All of the "traditional" transportation engineering topics, including traffic signals, intersection and interchange design, travel demand models, and horizontal curve safety, were present. However, a heavy dose of "new" topics was mixed in with these mainstays. Terms like "complete streets," "road diets," "pedestrians," and "transit" were equally represented. As I reviewed this agenda it dawned on me that this is not the same industry that I entered way back in 1997. Transportation engineering has changed for the better, but along the way it has become more complex than ever before.

These issues are certainly relevant, but there is much more happening out there in the real world. My goal for the remainder of 2016 is to get out more often by participating in meetings, conferences, and training sessions so that I can learn

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more about the issues that are influencing the way you do business. If I do not cross paths with you at one of these events, I would still like to know what is on your mind. Please give me a call or send me an email if there is anything that TTAP can do to help you through its training or technical assistance programs.



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aimed at multiple audiences is necessary to reduce fatalities among both workers and road users. Strategies include educating drivers on safe driving practices in roadway work zones and around other incidents, as well as educating those working in or near the roadway on safety practices. Transportation agencies have a key role in designing work zones to reduce the risk of crashes as much as possible, and in ensuring staff and contractors are adequately trained on appropriate set up and operation of work zones. Similar to many strategies that reduce crashes, long-term efforts to improve our traffic safety culture will also support vulnerable road user strategies by changing the way people make decisions about how they use the roads and interact with other road users.

Therefore, as we push forward “Towards Zero Deaths”, let us remind ourselves to slow down in work zones and pay extra attention for motorcyclists on our roads. As transportation agents, let us remind ourselves to continuously strive for excellence on all facets of our work, from engineering to education, enforcement and emergency services.

Summer Weather Safety and Survival Tips

Source: NOAA

You can help yourself and others avoid experiencing heat disorders by following these safety rules:

- **Avoid the Heat.** Stay out of the heat and indoors as much as possible. Spend time in an air conditioned space. Only two hours a day in an air-conditioned space can significantly reduce the risk of heat-related illness. Shopping malls offer relief if your home is not air-conditioned. If air conditioning is not available, stay on the lowest floor out of the sunshine. Remember, electric fans do not cool, they just blow hot air around.
- **Dress for the Heat.** Wear loose-fitting clothes that cover as much skin as possible. Lightweight, light-colored clothing reflects heat and sunlight and helps maintain normal body temperature. Protect your face and head by wearing a wide-brimmed hat. Avoid too much sunshine. Sunburn slows the skin’s ability to cool itself. Use a sunscreen lotion with a high SPF (sun protection factor) rating.
- **Drink for the Heat.** Drink plenty of water and natural juices, even if you don’t feel thirsty. Even under moderately strenuous outdoor activity, the rate your body can absorb fluids is less than the rate it loses water due to perspiration. However, if you have epilepsy or heart, kidney, or liver disease; are on fluid-restrictive diets; or have a problem with fluid retention you should consult a doctor before increasing liquid intake.
- **Do not drink in the Heat.** Avoid alcoholic beverages and beverages with caffeine, such as coffee, tea, and cola. Alcohol and caffeine constrict blood vessels near the skin reducing the amount of heat the body can release. Although beer and alcohol beverages appear to satisfy thirst, they actually cause further body dehydration.
- **Eat for the Heat.** Eat small meals more often. Avoid foods that are high in protein because they increase metabolic heat. Avoid using salt tablets, unless directed to do so by a physician.
- **Living in the Heat.** Slow down. Reduce, eliminate, or reschedule strenuous activities such as running, biking and lawn care work when it heats up. The best times for such activities are during early morning and late evening hours. Take cool baths or showers and use cool, wet towels.
- **Learn the symptoms** of heat disorders and know how to give first aid.

Incorporating Bicycle Lanes into Resurfacing Projects

by Airton Kohls and Matt Cate (Source: FHWA Incorporating On-Road Bicycle Networks into Resurfacing Projects)

Installing bicycle facilities during roadway resurfacing projects is an efficient and cost-effective way for communities to create connected networks of bicycle facilities. FHWA has just released “Incorporating On-Road Bicycle Networks into Resurfacing Projects” providing recommendations, methods for fitting bicycle facilities onto existing roadways, cost considerations, and case studies.

Why include bicycle facilities when resurfacing a roadway?

Well designed and interconnected bicycle transportation facilities allow for safe and convenient access to schools, jobs and other essential services. In addition, there is more federal support for bicycling nowadays with US DOT encouraging transportation agencies to improve conditions and integrate bicycle facilities into their transportation system. Cost wise, it is more effective to construct a bicycle facility during a resurfacing project than providing the same facility as a standalone project. Safety wise, providing bicycle facilities requires narrowing travel lanes or roadway reconfiguration, increasing the overall safety and comfort of a roadway for bicyclists and pedestrians without negatively impacting vehicular operation. Reducing lane widths can result in lower traffic speeds that better align with posted speed limits and lower traffic speeds typically result in less severe injuries in the event of a crash. Furthermore, pavement

markings for bicycle facilities installed on resurfaced roadways will last longer when compared to pavement markings installed on older pavements.

Resurfacing Process Major Steps

The major steps in the generalized resurfacing process include:

- Inventory of Road Conditions
- Processing of Street or Road Conditions Data
- Producing Preliminary Resurfacing List
- Producing Final List
- Project Development and Implementation
- Resurfacing Occurs
- Marking Occurs

This process works well for resurfacing roadways and marking them identically to how they were marked prior to resurfacing. However, due to the need for additional time for plan development, public outreach, and the design of new marking plans, this process is not often conducive to adding bicycle facilities during a resurfacing project. Therefore, among other things the following should be considered:

Provide adequate time – providing sufficient time to consider bikeways in projects is a major factor in enabling the inclusion of bikeways. With a longer timeframe, staff have more time to consider methods for finding space for bikeways, develop or update marking plans to include bikeways, perform public



Figure 1 - 5th Street SE in Minneapolis, MN, includes clearly marked bike lanes following a resurfacing project. Credit: Simon Blenski, City of Minneapolis, MN

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outreach and overcome unanticipated obstacles.

Multimodal approach and including key staff – including the right people in the resurfacing process at the right time can be the key to capturing opportunities to include bikeways with resurfacing projects. These key people include bicycle, pedestrian and transit staff who understand how the resurfacing project can positively impact all the users of the system.

Figure 2 highlights two boxes that illustrate opportune times in the process to include bikeway discussions and what should occur at those junctures. The first box occurs immediately after the preliminary resurfacing list is established. At this point, an initial scope of the project is established. The scope could be as simple as a minor overlay, or more involved such as the pavement being replaced.

Key bikeway considerations occur at this point and multiple questions should be asked:

- Is this route in the bike plan?
- Is the project covered by the agency’s bicycle policy (e.g. “All arterial and major collector streets should include a bikeway”)?
- Can this project enhance the connectivity of the existing bike network?
- If this is a neighborhood street, is a bike lane needed?
- Will this be a bicycle boulevard or neighborhood greenway?
- What are the potential methods (e.g. Road Diet, Lane Diet, parking removal, etc.) that could be used to include bikeways? Are certain methods more suitable than others based on the context?
- What questions need to be resolved to reach a final recommendation for a bikeway? For instance, will a traffic study need to be conducted to ensure that a four- to three-lane conversion will work or will a 10-foot wide outside travel lane be adequate for the amount of truck traffic and transit vehicles?
- Does the narrowness of the street eliminate all of the potential methods of finding space for bikeways?
- Is there a history of speeding or speed-related complaints about the street that a roadway reconfiguration could help address?

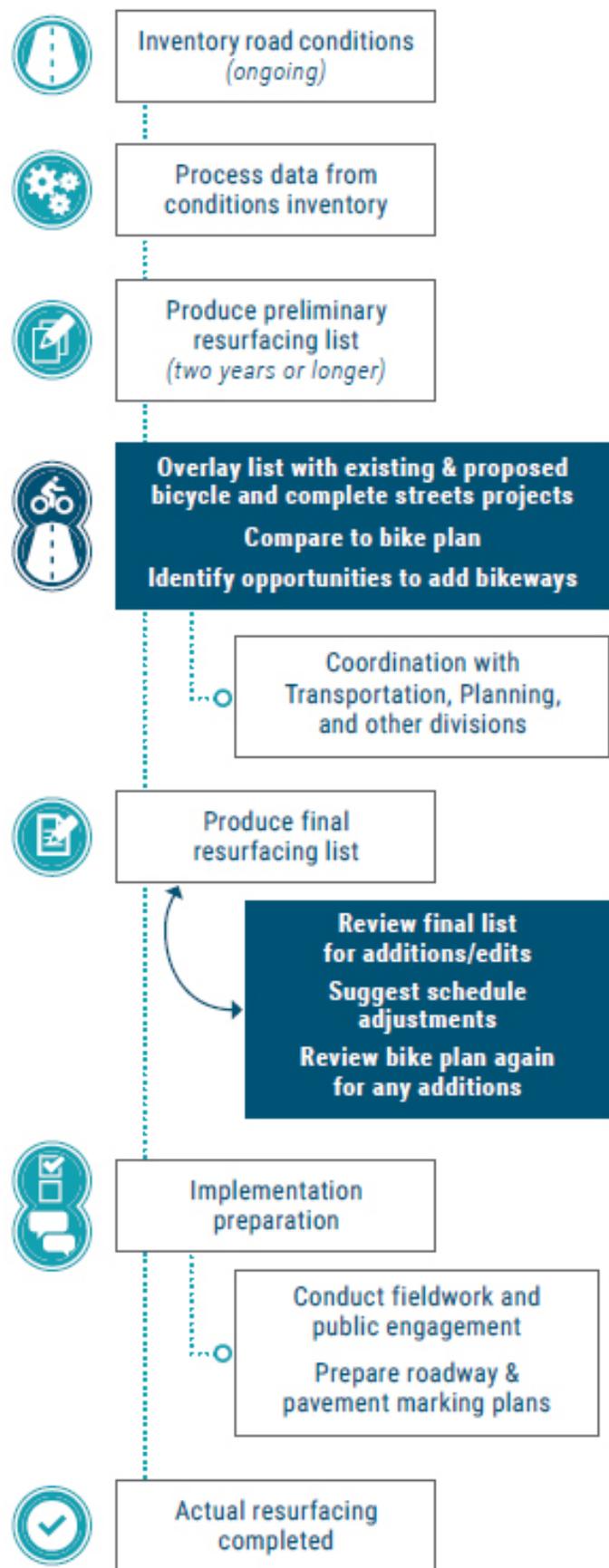


Figure 2 - The recommended resurfacing process identifies opportune times to add bicycle facilities early in the process.

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- If this is rural cross-section roadway, will the scope of the project allow paved shoulders? How wide can the shoulders be? Will they be marked as bike lanes or simply left as paved shoulders with an edge line?

As a final resurfacing list is created, it may be possible to delay some resurfacing projects for a year or two if the consideration of bikeways is not complete but solutions appear workable or likely. When considering delaying a project, it is important to ensure that the delay will not lead to significantly worse pavement conditions that may not be able to be resurfaced. The second box in Figure 2 reflects when this occurs. This is also the appropriate time to return to earlier questions that arose as the preliminary resurfacing list was established. A key question is whether a method to include the bikeway has been determined. Changes to the bike plan or nearby existing bikeways that impact the project or connections to the project should also be considered at this time.

Therefore, FHWA “Incorporating On-Road Bicycle Networks into Resurfacing Projects” provides us with recommendations for how roadway agencies can integrate bikeways into their resurfacing program. By installing bicycle facilities during resurfacing projects, agencies can create connected networks of bicycle facilities in an efficient and cost-effective manner. This document also discusses methods for including bikeways on resurfacing projects (lane narrowing/lane diet, roadway reconfiguration/road diet, parking removal and shoulder paving) and cost plus material considerations as well as several case studies throughout the country. For additional information download at http://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/resurfacing/resurfacing_workbook.pdf

ADA May Require Agencies to Implement Curb Ramp Improvements during Resurfacing Projects

Adapted from FHWA and USDOT websites

Without curb ramps, sidewalk travel in urban areas can be dangerous, difficult, or even impossible for people who use wheelchairs, scooters, and other mobility devices. Curb ramps allow people with mobility disabilities to gain access to the sidewalks and to pass through center islands in streets. Otherwise, these individuals are forced to travel in streets and roadways and are put in danger or are prevented from reaching their destination; some people with disabilities may simply choose not to take this risk and will not venture out of their homes or communities.

The Americans with Disabilities Act (ADA) does not require public agencies to provide pedestrian facilities. However, when a public agency provides a pedestrian facility, it must be accessible to persons with disabilities to the extent technically feasible. An important part of this requirement is the obligation whenever streets, roadways, or highways are altered to provide accessible curb ramps where street level pedestrian walkways cross curbs. This requirement is intended to ensure the accessibility and usability of the pedestrian walkway for persons with disabilities.

An alteration is a change that affects or could affect the usability of all or part of a building or facility. Roadway surface treatments that are considered to be alterations include: reconstruction, rehabilitation, open-graded surface course, microsurfacing, thin-lift overlays, cape seals, and in-place asphalt recycling.

Treatments that serve solely to seal and protect the road surface, improve friction, and control splash and spray are considered to be maintenance because they do not significantly affect the public’s access to or usability of the road. Roadway surface treatments that are classified as maintenance include: crack filling and sealing, surface sealing, chip seals, slurry seals, fog seals, joint repairs, spot high-friction treatments, diamond grinding, and pavement patching. In some cases, the combination of several maintenance treatments occurring at or near the same time may qualify as an alteration and would trigger the obligation to provide curb ramps.

Resurfacing is an alteration that triggers the requirement to add or upgrade non-compliant curb ramps

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if it involves work on a street or roadway spanning from one intersection to another, and includes overlays of additional material to the road surface. A project that involves milling an existing road, and then overlaying the road with material, regardless of whether it exceeds the height of the road before milling, falls within the definition of “alteration” because it is a change to the road surface that affects or could affect the usability of the pedestrian route (crosswalk).

Crosswalks constitute distinct elements of the right-of-way intended to facilitate pedestrian traffic. Regardless of whether there is curb-to-curb resurfacing of the street or roadway in general, resurfacing of a crosswalk also requires the provision of curb ramps at that crosswalk.



Curb ramps must be provided anywhere a sidewalk crosses a curb. Missing (shown) or noncompliant curb ramps must be installed or upgraded as a part of resurfacing projects regardless of the funding source.

An alteration project must be planned, designed, and constructed so that the accessibility improvements within the scope of the project occur at the same time as the alteration. The ADA does not stipulate how to perform simultaneous accessibility improvements. For example, a public agency may select specialty contractors to perform different specialized tasks prior to completion of the alteration project or concurrently with an ongoing project. If curb ramp improvements are needed in the vicinity (but beyond the limits) of an alteration project, it is often cost effective to address such needs as part of the alteration project, thereby advancing the public entity’s progress in meeting its obligation to provide program access to its facilities.

Finally, public entities should not structure the scope of work to avoid ADA obligations to provide curb ramps when resurfacing a roadway. For example, resurfacing only between crosswalks may be regarded as an attempt to circumvent a public entity’s obligation under the ADA, and potentially could result in legal challenges.

For additional information on accessibility improvements that may be required as part of resurfacing projects and other roadway alterations, please visit the following web sites:

1. “Questions and Answers About ADA/Section 504,” FHWA Office of Civil Rights, http://www.fhwa.dot.gov/civilrights/programs/ada_sect504qa.cfm
2. “Department of Justice/Department of Transportation Joint Technical Assistance on the Title II of the Americans with Disabilities Act Requirements to Provide Curb Ramps when Streets, Roads, or Highways are Altered through Resurfacing,” United States Department of Justice Civil Rights Division, <http://www.ada.gov/doj-fhwa-ta.htm>
3. “QUESTIONS & ANSWERS: Supplement to the 2013 DOJ/DOT Joint Technical Assistance on the Title II of the Americans with Disabilities Act Requirements To Provide Curb Ramps when Streets, Roads, or Highways are Altered through Resurfacing,” United States Department of Justice Civil Rights Division, <http://www.ada.gov/doj-fhwa-ta-supplement-2015.html>
4. “Glossary of Terms for DOJ/DOT Joint Technical Assistance on the ADA Title II Requirements to Provide Curb Ramps When Streets Roads or Highways are Altered Through Resurfacing,” United States Department of Justice Civil Rights Division, <http://www.ada.gov/doj-fhwa-ta-glossary.htm>

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3. Please list any other ideas or suggestions on how TTAP could assist you.

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