

This analysis was handed out 10-24-2007 at the Bailey Hill Road Safety Committee meeting. After a presentation by Eric Jones and Tom Larsen (Traffic Engineer) the meeting attendees were given four colored dots to place above the 4 suggestions that they felt were most apt to improve pedestrian safety. The 'votes' are



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## MEMORANDUM

**Date:** October 24, 2007

**To:** Churchill Area Neighbors/Bailey Hill Road Safety Committee

**From:** Eric Jones, Public Affairs Manager

**Subject:** Preliminary Analysis of Bailey Hill Road Safety Improvements

### **Introduction and Problem Statement**

The tragic death of a 10-year-old child in a traffic crash on August 27 initiated a community dialogue, starting with the question of "How do we prevent this from happening again?" The largest contributing factor in this fatal crash was excessive speed, estimated at 30 mph over the posted speed limit. The mid-block pedestrian crossing of four travel lanes – compounded by infrequent traffic gaps and the length of the crossing – presents difficulties for pedestrians. In addition, this crash was an example of what is called a multiple-threat collision, which occurs on a multi-lane road when a driver in one lane stops for a pedestrian and the following driver, not seeing the pedestrian through the stopped vehicle, changes lanes at the last moment and strikes the pedestrian.

The first step is to define the problem so potential solutions can be evaluated. There are three areas of concern:

- The overall function of Bailey Hill Road from 18<sup>th</sup> Avenue to Warren Street
- The pedestrian crossing from Churchill High School to the shopping area in the area of Westleigh Street and the fire station
- The pedestrian crossing where the fatal crash actually occurred, between the skate park/youth sports park and the shopping area, more than 200 feet south of Westleigh.

The question then becomes, “What can be done to make it safer for pedestrians, especially children, to cross this section of Bailey Hill Road?”

### **Purpose Statement**

Based on information received at several meetings of the Bailey Hill Road Safety Committee and the Churchill Area Neighbors, Eugene Public Works staff compiled a list of 15 ideas generated by citizens and staff. This memo provides a brief, high-level and preliminary analysis of those ideas. The intent of this analysis is not to suggest specific solutions to safety concerns but rather to look at the feasibility of various ideas with a goal of winnowing the list of ideas to those proposals that appear to have the greatest chance of succeeding. A subsequent process would be used to refine the preferred alternatives, further analyze their feasibility, engage in a community outreach process to ensure that all voices have been heard, and then move to a work plan to implement the preferred alternatives. The actual implementation of specific actions or projects would include opportunities for additional community input.

### **Analytical Methodology**

Each of the 15 suggestions first was categorized as either “engineering,” “education” or “enforcement.” Thirteen of the suggestions analyzed by Public Works were in the “engineering” category, two were in the “education” category, and none were in the enforcement category. This is not intended to suggest that ideas in the areas of education and enforcement aren’t worthy of analysis; rather, it reflects the fact that Public Works is better equipped to analyze engineering ideas and defers to parents, educators, and law enforcement officers to determine the feasibility of education and enforcement ideas.

Each idea considered by Public Works was then defined and assigned a staff lead who looked at strengths, weaknesses, costs and funding sources, timing, and other considerations. Staff consulted with District 4j officials on several ideas that might have direct impact on the school district. The analyses of specific ideas are detailed in Appendix A.

### **Conclusions**

As noted in the purpose statement, this preliminary analysis is not intended to provide final conclusions on preferred alternatives. That said, the analysis does suggest several options that appear to be more feasible and are more likely to lead to the intended outcome of transportation

facilities that are safe and meet the needs of all users, particularly younger pedestrians.

The most promising “engineering” option is the redesign of Bailey Hill Road to reduce the number of travel lanes (the so-called “road diet” option). This option removes the “multiple-threat” danger for pedestrians crossing the street. It also opens up the possibility of numerous other options that, on their own, might not be particularly effective or affordable but could be considered as safety enhancements in the design phase of the road reconstruction project. These secondary options include signalized crossings, access control improvements, and sidewalk repairs and adjustments. There are a number of challenges, including timing and funding issues, in this approach. A concerted and collaborative effort involving the school district, the neighborhood group and the City staff would be most likely to succeed.

This preliminary analysis found few quick and easy solutions, particularly in the engineering category. Public Works can and will continue to ensure that pavement markings and signs are visible to motorists and pedestrians, and we are committed to continuing to work with the neighborhood and the school district on incremental safety improvements. Education and enforcement options would appear to offer better results in the short term. We encourage a collaborative effort to seek Safe Routes to Schools funding. We also encourage the Churchill Area Neighbors to work with the Transportation Planning staff at Public Works to ensure that the concerns about pedestrian safety in the area of Bailey Hill Road are appropriately addressed in the City’s draft Pedestrian and Bicycle Strategic Plan. And we hope that parents and neighbors will continue to have good energy around this issue and to find ways (perhaps as crossing guards or by being trained in the use of radar guns) to keep motorists and pedestrians aware of safety issues.

We in Public Works look forward to working with the community on engineering solutions. If you have any questions, please feel free to contact me or any other members of the Public Works staff.

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## **Appendix A: Specific Analyses**

### **ENGINEERING SOLUTIONS**

## **Suggestion #1: Lower the speed limit (5 ●)**

**Lead staff:** [Tom Larsen](#), Traffic Engineer

**Strength(s):** Low cost; generally perceived as a quick and easy fix; addresses a common concern in neighborhoods about speeding traffic.

**Weakness(es):** Difficult to process with State Speed Board; majority of drivers fail to obey posted limit

**Cost/Source of Funding:** Under \$1,000; speed signs would be replaced with existing operational funds

**Timing:** 6 months to conduct a speed study, apply to and get response from State Speed Board, and implement any approved changes.

**Additional Comments:** Given current road design, taking into account the current rate of speed of the 85% percentile drivers (42 mph), and using the current statistical crash history, State Speed Board is unlikely to lower posted speed from the current 35 mph.

**Recommendation:** First pursue other options to slow down motorists, then conduct a speed study and seek to have the speed limit lowered.

## **Suggestion #2: Mark crosswalk at skate park (0 ●)**

**Lead staff:** [Tom Larsen](#), Traffic Engineer

**Strength(s):** Quick, low cost depending on enhancements. Within local control

**Weakness(es):** Drivers fail to yield or stop at the existing crosswalk with enhanced warning signs and flashers. Simple marking would be ineffective and may increase risk to younger pedestrians. The most southerly driveway to the shopping area should be closed. Fails to address high school students crossing near Westleigh and Fire Department concerns

**Cost/Source of Funding:** Simple version would cost about \$500; adding enhanced signs/flashers would cost in the range of \$20,000. The simple version is within operational budget, enhanced is not.

**Timing:** Quick for simple, funding dependant for enhanced

**Additional Comments:** None.

**Recommendation:** Do not pursue this option on its own. Consider this or other crossings during the design phase for Bailey Hill Road reconstruction.

## **Suggestion #3: Increase visibility of crossing(s) and/or signage (3 ●)**

**Lead staff:** [Tom Larsen](#), Traffic Engineer

**Strength(s):** Some improvements can and will be done incrementally. Within local control.

**Weakness(es):** Existing crossing has advance warning signs, advance stop bar with signs and school hours flashing light. These devices are

generally ineffective, based on driver behavior (i.e., some citizens disobey clearly visible signs). Urban forestry impacts need to be considered when pruning or removing trees.

**Cost/Source of Funding:** Pruning and sign maintenance is identified in operating budgets.

**Timing:** Work will progress as items are identified and resources allow.

**Additional Comments:** Some replacement signs and new signs have recently been installed . Vegetation management is under discussion. The next increment in crossing visibility is actuation.

**Recommendation:** Continue to maintain visibility on an ongoing basis.

## **Suggestion #4: Control pedestrian access (install fence) (5 ●)**

**Lead staff:** [Eric Jones](#), Public Affairs Manager

**Strength(s):** As a physical barrier, this option does not rely on behavioral changes by pedestrians.

**Weakness(es):** To maintain access between the setback sidewalk on the west side of Bailey Hill Road and the internal park/school walkway system, the fence would have to run along the curb. The fencing limits are the driveway access to the Pathfinders School on the south (the fence cannot run up along the Pathfinders driveway without crossing the setback sidewalk) and the fire station driveway on the north. This means the southerly end of the fence would be less than 100 feet from the southerly skate park path; students unwilling to walk to the Warren or Westleigh crossings would probably run across Bailey Hill Road at the Pathfinders School driveway. Curbside fencing also creates a “speedway” effect for drivers who may pay less attention to pedestrians thinking that the fence will prevent any pedestrians from crossing the street in that area. The fence also would create maintenance issues for 4j staff and could reduce visibility of the skate park from the street.

**Cost/Source of Funding:** Approximately \$6,500 at the rate of \$20 per lineal foot.

**Timing:** 3 to 6 months

**Additional Comments:** A revocable right-of-way use permit would be required; fence design aspects (materials, height, etc.) would be controlled through the permit.

**Recommendation:** Fencing or other pedestrian blocking treatments should only be used to channel pedestrians to safe and appropriate pedestrian crossing facilities. Simply erecting a fence would just shift the problem of uncontrolled crossing to a different location.

## **Suggestion #5: Reconfigure park/bike path/sidewalk access routes (0 ●)**

**Lead staff:** [Kevin Finney](#), Park Operations Manager

**Strength(s):** Current "T" sidewalk intersection alignment of the in-park path system with the Bailey Hill sidewalk encourages mid-block crossing.

**Weakness(es):** It's unclear whether the path change would achieve improved behavior around street crossing. Crossing may continue where each end of the path intersects the Bailey Hill sidewalk, and/or a "desire line" trail may be established in the old path location if that continues to be the preferred crossing point. Note that all the youth sports park improvements at Churchill are located on 4J property.

**Cost/Source of Funding:** Approximately \$3,000, source of funding to be determined

**Timing:** 2 to 4 weeks

**Additional Comments:** None

**Recommendation:** On its own, this option is not likely to lead to desired safety outcomes; consider this option in conjunction with other crossing options at this location.

## **Suggestion #6: Improve existing sidewalks between the shopping center and Warren Street. (4 ●)**

**Lead staff:** [Lee Shoemaker](#), Bicycle and Pedestrian Coordinator

**Strength(s):** Likely to be viewed as a good component of a Safe Routes to School grant application. Reduces out of direction travel and may keep some pedestrians and runners from using bike lane.

**Weakness(es):** An alternative asphalt sidewalk is available on private property but a "closed sidewalk" sign is posted.

**Cost/Source of Funding:** Approximately \$7,800 for 260 feet of 6-foot-wide sidewalk at \$5 per square foot. Typically sidewalks are assessed to abutting property owners.

**Timing:** Most efficient to do this in conjunction with other road improvements.

**Additional Comments:** Staff is inventorying the trees. One apple tree likely needs to be removed, and several laurel trees on private property probably should be replaced with more appropriate trees.

**Recommendation:** Consider this option during the design phase for Bailey Hill Road reconstruction.

## **Suggestion #7: Control vehicle access (limit/close Churchill High School south driveway and commercial driveways on the east side)**

**(2 ●)**

**Lead staff:** [Tom Larsen](#), Traffic Engineer

**Strength(s):** Needed to make other options workable

**Weakness(es):** Will make little difference if implemented alone; may have major impacts on school and/or businesses.

**Cost/Source of Funding:** Staff time is in existing budgets. Impact to private property may become “damages” issue.

**Timing:** 3 to 6 months or longer if substantial capital improvements are needed by 4j

**Additional Comments:** None

**Recommendation:** Implement access control in conjunction with other options

## **Suggestion #8: Install pedestrian-activated crosswalk signal at skate park (13 ●)**

**Lead staff:** [Tom Larsen](#), Traffic Engineer

**Strength(s):** Safer than simply marking an additional crosswalk; within local control

**Weakness(es):** Cost is an issue; to safely accommodate pedestrian mid-block crossing patterns from the skate park, the driveway to the market on the east side of Bailey Hill Road should be closed.

**Cost/Source of Funding:** \$125,000, with no identified source although state funding may be possible through the Safe Routes to Schools program

**Timing:** 12 to 24 months, dependent primarily on availability of funding and ability to eliminate driveway access

**Additional Comments:** Installation of a pedestrian-actuated crossing signal at this location may complicate efforts to create a safer crossing at Westleigh

**Recommendation:** Hold off on this idea until design issues have been worked out on Bailey Hill Road, including improved crossing safety at Westleigh

## **Suggestion #9: Install pedestrian-activated crosswalk signal at Westleigh (8 ●)**

**Lead staff:** [Tom Larsen](#), Traffic Engineer

**Strength(s):** Addition of actuated red phase would increase safety; activation control would reduce red light delays for traffic on Bailey Hill when pedestrians are not present.

**Weakness(es):** High school pedestrian traffic is not well focused and pedestrian compliance at Westleigh may be an issue. Controlling one pedestrian movement at the intersection can create ambiguous right of way assignment for other motorists. Automobile traffic queuing and proximity of the Churchill south parking lot access may cause serious operation problems when the signal is red. Installation of a single actuated crosswalk may adversely impact fire station operations. Full traffic signal at Westleigh is more desirable. Would not significantly address problems at the site of the fatal crash.

**Cost/Source of Funding:** \$100,000 for actuated crossing, with no identified source of funding.

**Timing:** 6 to 12 months, dependent on funding

**Additional Comments:** None

**Recommendation:** This appears to be an effective option; however, the cost and impact on the school and business traffic are significant issues that would need to be addressed.

## **Suggestion #10: Install full traffic signal at Westleigh (17 ●)**

**Lead staff:** [Tom Larsen](#), Traffic Engineer

**Strength(s):** Most effective way to improve pedestrian crossing safety; seen as a significant improvement by Fire Department

**Weakness(es):** Cost. Intersection does not meet volume, crash or system warrants. Rest in green phase may lull drivers. South parking lot access to Churchill High School may be negatively impacted by queued southbound traffic. Queues for the northbound left into Churchill may create problems in the intersection. Does not address problems at site of fatal crash.

**Cost/Source of Funding:** \$300,000 for actuated crossing, with no identified source of funding

**Timing:** 6 to 12 months, dependent on funding

**Additional Comments:** None

**Recommendation:** This appears to be an effective option; however, the cost and impact on the school and business traffic are significant issues that would need to be addressed.

## **Suggestion #11: Shift traffic from Bailey Hill Road to Bertelsen Road (3 ●)**

**Lead staff:** [Rob Inerfeld](#), Transportation Planning Manager

**Strength(s):** When Bertelsen between Bailey Hill and 18<sup>th</sup> Avenue is improved to urban standards (construction scheduled for 2011) it will become a more attractive route and some drivers may choose to drive on Bertelsen instead of Bailey Hill. A future pavement preservation project on Bertelsen between 18<sup>th</sup> and 11<sup>th</sup> avenues may also help make Bertelsen a more attractive route.

**Weakness(es):** The impact of these changes is likely to have a marginal effect on traffic volumes on Bailey Hill Road. We can't force people to use Bertelsen instead of Bailey Hill, and both streets are classified as minor arterials. Also, abutting property owners on Bertelsen will bear a significant share of the cost and have the right to remonstrate or protest an improvement project.

**Cost/Source of Funding:** To improve Bertelsen from Bailey Hill to 18<sup>th</sup> Avenue would cost an estimated \$2.4 million, from assessments and SDCs (per 2008-2013 CIP), plus approximately \$620,000 to rehabilitate Bertelsen from 11<sup>th</sup> to 18<sup>th</sup> avenues.

**Timing:** Improvements to Bertelsen between Bailey Hill and 18th are scheduled for 2011, unless significant issues are raised by abutting property owners.

**Additional Comments:** None

**Recommendation:** Given the lengthy time frame to complete Bertelsen Road improvements and the potentially marginal effects of those improvements on Bailey Hill Road, do not count on this option to effectively achieve the safety outcomes for Bailey Hill Road.

## **Suggestion #12: Reduce the number of lanes on Bailey Hill Road ("road diet") (23 ●)**

**Lead staff:** [Rob Inerfeld](#), Transportation Planning Manager; [Matt Rodrigues](#), Engineering Project Mgr.

**Strength(s):** Pedestrians would only have to cross one lane of traffic in each direction and would have a refuge where they can stop in the middle. This will be a major improvement over the current situation where pedestrians need to cross four lanes of traffic without a break (i.e., removes the "multiple threat crash" situation). Allows for the addition of aesthetic enhancements to Bailey Hill Road through landscaping on the median. The overall effect would likely be to lower vehicular speeds. May also create an opportunity to add an additional crosswalk north of Westleigh.

**Weakness(es):** Need to secure funding for the street reconstruction and pedestrian enhancements from separate sources. Pavement preservation program funding is not guaranteed. Soonest project could be constructed

with proposed funding sources is 2009. For the three lane section to be successful, significant changes in access to Churchill High School are needed.

**Cost/Source of Funding:** Total cost estimated for reconstruction of Bailey Hill from 18<sup>th</sup> Avenue to the south side of the Warren intersection is approximately \$1,200,000, with approximately \$250,000 of the costs related to the 4-to-3 lane conversion. The likely source of funding for the reconstruction is the City's pavement preservation program fund. A likely source of funding for the pedestrian enhancements is from an ODOT ped/bike grant; applications are due in the late summer of 2008 and funding becomes available beginning July 1, 2009.

**Timing:** Soonest project could be constructed with proposed funding sources is 2009.

**Additional Comments:** Additional study needed to evaluate whether fewer lanes would result in cut-through traffic on neighborhood streets. Many design elements, including the appropriateness of on-street parking, would be the subject of continued community involvement.

**Recommendation:** Despite extended time frame and relatively high cost, this solution appears to be the most likely way to achieve the goal of long-term safety improvements and comprehensively address the needs of pedestrians, bicyclists, motorists, and neighborhood residents.

### **Suggestion #13: Construct a pedestrian bridge over Bailey Hill Road (0 ●)**

**Lead staff:** [Steve Gallup](#), Traffic Technical Supervisor

**Strength(s):** An overcrossing, when and if used, offers the greatest safety to pedestrians because they are physically separated from motor vehicle traffic.

**Weakness(es):** The addition pedestrian travel distance – up to 400 feet on each side to meet ADA requirements – would tend to discourage pedestrians who want to take a more direct route. A structure that is not being used because it is inconvenient may create a situation whereby pedestrians are at greater risk when they attempt to cross the road at-grade, drivers don't expect pedestrians to be crossing if they see an overhead crossing. Would probably require right-of-way acquisition from the school on the west and commercial property on the east.

**Cost/Source of Funding:** Preliminary cost estimates to build a pedestrian overcrossing is about \$2.4 million. This includes engineering, contingencies and some right-of-way cost.

**Timing:** 3 to 5 years, including finding and programming capital funding, designing the bridge, and constructing it.

**Additional Comments:** None.

**Recommendation:** Because of the cost, the impact on the adjoining properties and the likelihood of relatively low usage by pedestrians, staff recommends at-grade crossing protections such as pedestrian refuges, traffic signals, etc.

## EDUCATION SOLUTIONS

### **Suggestion #14: Seek Safe Routes to Schools (SRTS) funding (BHRSC to work on)**

**Lead staff:** [Lee Shoemaker](#), Bicycle and Pedestrian Coordinator

**Strength(s):** ODOT has funding to provide education, enforcement, and infrastructure programs within 2 miles of K-8 schools. An action plan would have to be developed that can be funded by ODOT. ODOT is developing a K-6 pedestrian/bike safety curriculum and may be interested in looking at Kennedy and adding grades 7-8.

**Weakness(es):** While McCornack students may cross Bailey Hill in this area, it will have to be demonstrated to ODOT that the SRTS components benefit elementary students.

**Cost/Source of Funding:** Next round of funding is 2008. The SRTS Program will favor lower cost projects that increase safety and access. The maximum award will be \$250,000 per school or \$500,000 total for joint (bundled) proposals. A very limited number of schools will receive awards over \$75,000. Special preference will be given to schools, districts or local government agencies that bundle their projects and activities into one combined application for efficiency.

**Timing:** ODOT hopes to have new applications in early 2008.

**Additional Comments:** None

**Recommendation:** Through a cooperative effort of the school district, the City and the neighborhood group, develop an SRTS action plan that is coordinated with other safety strategies and seek SRTS funding in 2008.

### **Suggestion #15: Find ways to link to Pedestrian and Bicycle Strategic Plan (BHRSC to work on)**

**Lead staff:** [Lee Shoemaker](#), Bicycle and Pedestrian Coordinator

**Strength(s):** Developing Safe Routes to School programs was a very high priority for the Pedestrian and Bicycle Strategic Plan Departmental Advisory Committee as well as safety and education programs for all users of the system including car drivers.

**Weakness(es):** There is not an established funding program.

**Cost/Source of Funding:** n/a

**Timing:** Draft plan will be released to the public in November 2007 with CMO approval likely in early 2008.

**Additional Comments:** None

**Recommendation:** Churchill Area Neighbors are encouraged to seek ways to link the safety needs on Bailey Hill Road with the draft Pedestrian and Bicycle Strategic Plan. Information about the Pedestrian and Bicycle Strategic Plan is available at [www.eugene-or.gov/walkbike](http://www.eugene-or.gov/walkbike).