PUGET PULLWAY

Take the Quipp-er ™ and get there Quicker

John H. Bruns

I-314-001

Puget Pullway

For the benefit of our driving citizens may I recommend my invention, Puget Pullway, to the attention of our leaders?

Puget Pullway retrofits one lane each way of an existing grade-separated road to a totally-electrified, automated configuration for cars and minibuses. Design is based on proven technology from DOT/GM-demos on I-15, San Diego (1997) and Morgantown GRT, which has served WV Univ. since the seventies.

It obviates use of light rail or any change other than retrofitting a Pullway on the new lanes in the SR520 corridor. Being electric, it needs little ventilating air and widens the possibility of using submerged or tunneled designs.

The Pullway resorts to a guideway to increase capacity by reducing the stopping distance through better brakes pinching the guideway flanges. A pullway adaptation also "specializes" its lane by limiting vehicle height to 77 inches; thereby enabling double-decking for ramps and relief of choke-points. (Its capacity then approaches 10,000 vehicles/lane.) A Pullway is totally roll-on, roll-off with vehicles never interconnected to each other.

Electricity is obtained from the grid or a private source, eventually micro-nuclear but initially from natural gas. Four hundred sixty volts is supplied to the Pullway via third rail, which drives motorized modules riding in the guideway (MOTAMs), each being equipped with a space age tow bar that pulls, steers, spaces, stops and recharges vehicle batteries on the roll. A three level control system is specified. A nation-wide network should reduce accident rate by 5500 fatalities/year, plus about 95% reduction in lesser accidents A pullway thrives on the economy from use of a cheaper source, which saves us 7c/mile in tolls. The combination of cheaper energy and higher capacity will improve business prospects for toll operators.

The 520 bridge is about to materialize into a readily adaptable evolving technology: " Puget Pullway"

John H. Bruns, P.E. (retired)
John H. Bruns 4-12-10
Mercer Island
206.232-6410 (206)7084145 cell

206.232.6410 • ghbruin@comcast.net • 8251 SE 26th Street Mercer Island WA 98040 • www.pugetpullway.com

I-314-001

As described in Chapter 1 of the SDEIS and in the Range of Alternatives and Options Evaluated Report (Attachment 8 to the SDEIS), an extensive range of alternatives has been evaluated for this project. Alternative corridors, technologies (e.g. tubes and tunnels), and travel modes, as well as many design variations within the existing corridor, were evaluated as part of the Trans-Lake Washington Study and again after the initiation of NEPA review in 2000. Chapter 2 of the Final EIS provides additional information on how alternatives were developed and evaluated, and why some solutions were determined not to be reasonable alternatives.

Title 23 USC 109 requires projects on the National Highway System (NHS), including SR 520, to comply with design standards that are approved by the Federal Highway Administration (FHWA), which is an agency of the US Department of Transportation (USDOT). These design standards are developed cooperatively by the states and FHWA through the American Association of State Highway and Transportation Officials (AASHTO). The USDOT and AASHTO engage in ongoing research on all aspects of highway transportation to support the development of new standards and policies to be applied on the nation's highways.

The USDOT has supported research on automated highway concepts since the 1970s. The 1997 demonstration project on I-15 in San Diego was part of the National Automated Highway System Research Program (NAHSRP), established by the USDOT as directed in the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). This program lost funding in 1997 and the USDOT research focus shifted to the Intelligent Vehicle Initiative, leading to the Vehicle Infrastructure Integration program and the current IntelliDrive program. The NAHSRP project demonstrated proof of technical concept under controlled conditions, but identified several technical and institutional challenges. The Technical Feasibility Demonstration Summary Report (1998) acknowledged that "the various systems were not engineered for

reliability, robustness, or to meet the full needs of highway driving....” The ongoing USDOT research is intended to address the technical challenges of automated highway systems. The current national consensus among transportation agencies, including the USDOT, is that substantial research and development of technologies and policy/institutional issues is needed before an automated highway system will be feasible.

In addition to the lack of feasibility, implementation of a unique, automated highway system on SR 520 would be inconsistent with the USDOT position on uniformity of application for intelligent transportation system (ITS) technologies that will improve efficiency and safety on the nation's highways. The FHWA Rule on ITS Architecture and Standards Conformity, 23 CFR 940, emphasizes this by requiring ITS projects that receive federal highway funds to conform to national ITS standards.
For more information on automated highways, see the USDOT Research and Innovative Technology Administration, ITS Strategic Research Plan, 2010-2014 at: http://www.its.dot.gov/strat_plan/strategic_plan2010_2014/index.htm; the 1997 demonstration in National Automated Highway System Consortium Technical Feasibility Demonstration Summary Report, February 1998, National Automated Highway System Consortium; and additional background information in Special Report 253, Review of the National Automated Highway System Research Program, Transportation Research Board, 1998.

Faster Commute time is trimmed way back, because the Pullway triples the capacity of the current roadway, with increased speeds. No congestion!

Safer Similar to a chairlift, the Pullway locks in the distance between vehicles, eliminating the possibility of rear-end collisions. Distances formerly required to maintain safe stopping allowance between cars can be reallocated to an increased carrying capacity!

Greener No fossil fuels are used by vehicles on the Pullway so overall pollution is reduced. The Pullway is electrically powered.

Cheaper Current roadways are adapted, rather than torn out or rebuilt. Adaptation can be done incrementally. Little excavation, paving, or earthmoving is required to initiate the Pullway.

Sooner The Pullway will be available for use in a quarter of the time of road widening solutions or light rail because it utilizes existing roadways.

more on the web site]