DAWN OF THE HYDROLLEY

or

“2009: A CHANGE ODYSSEY”

Presented June 11, 2009 at the

Fifth International Hydrail Conference

at the University of North Carolina at Charlotte

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Mooresville/South Iredell Chamber of Commerce

Mooresville, North Carolina
1969...Stanley Kubrick’s film classic, 
**2001: A Space Odyssey**

The “2001” movie plot:

• “HAL”—the space ship’s computer—goes haywire and kills all but two of the crew.

• HAL lures astronaut Dave out of the ship in a work “pod” in a hopeless attempt to rescue Frank, his partner. But Dave forgets and leaves his space helmet onboard the ship.

• Dave has to choose between **slowly running out of air** in the pod or regaining the main space ship by **surviving a few seconds in the vacuum of space**.

• **Everything** depends on **minimizing time he spends in the vacuum**!

An illustrative metaphor for the catenary-to-hydrolley transition
LIKE DAVE’S TRIP THROUGH THE VACUUM OF SPACE, THE TROLLEY-TO-HYDROLLEY TRANSITION IS UNAVOIDABLY DANGEROUS AND PAINFUL.

BUT AT SOME POINT, THE RISK OF *INACTION* BECOMES *GREATER* THAN THE RISK OF *INNOVATING* . . . THOUGH THE STATUS QUO MAY *SEEM* LESS SCARY.
WHAT’S DRIVING THE CURRENT STREETCAR RENAISSANCE

• 1980: 8 in US ... 2005: 28 ... 2006: 81+ planned!
• the driving hassles of personal cars: fuel cost, A/Q non-attainment, CO$_2$ emissions, urban congestion
• the infrastructure capital / maintenance and transportation fuel requirements of sprawl
• a new, growing, young, urban-preferring demographic
• a new paradigm: the car as an encumbrance rather than an enabler
• the unavoidable tension between the car and environment
Seattle, Portland, Salem, San Francisco, LA, San Diego, Tucson, Phoenix, Albuquerque, Denver, Colorado Springs, Spokane, Boise, Salt Lake, Sacramento, Austin, Houston, Corpus Christi, Kansas City, St. Louis, Des Moines, Minneapolis, Kenosha, Madison, Omaha, Chicago, Little Rock, Memphis, Dayton, Toledo, Cincinnati, Columbus, Lancaster, Philadelphia, Newark, Providence, Kinston NY, DC, Richmond, Roanoke, Atlanta, Savannah, Birmingham, Miami, Tampa, Grand Rapids, Boston, Lowell, French Lick Indiana, Charlotte, NC.

EXISTING AND PLANNED STREETCAR SYSTEMS: 81 +
THE HYDROLLEY DIFFERENCE

- *no overhead catenary*—leaves municipal utility plant “buried in peace.” On–board fuel cells eliminate the need:
  - *no* poles or guys
  - *no* transformer substations
  - *no* complex grounding
  - *no* catenary maintenance labor
  - but a trackside fueling site is needed
HYDROLLEY ADVANTAGES:

- Avoids $2.0 - 4.5 million capital investment per mile of track by eliminating track electrification.

- Avoids interference problems when tall equipment like cranes must be moved through cities.

- Eliminates the maintenance costs, shock hazards, weather, and security vulnerability of overhead power systems.
HYDROLLEY POTENTIAL: MORE STREETCARS, AND SOONER:

• Substantially reduces fixed plant cost; “lowers the funding bar.”

• Clean, hi-tech panache will attract young and Green-minded ridership.

• If cities now planning streetcar systems collaborate to plan, R&D and manufacturing can proceed more rapidly; major scale pricing economies can be obtained.
THE COST OF NOT KNOWING

PRE-PLANNING, PERMITTING
R-O-W ACQUISITION, ENGINEERING
CONSTRUCTION

“FIND OUT” DATE

TIME
BEST TRANSITION STRATEGY: MAKE IT QUICK

Like Dave’s brief trip through the vacuum of space, the least harm comes from minimizing the duration of the transition.

The duration can be minimized by early and thorough sharing of heads-up hydrolley information.

Making the transit industry aware quickly of the hydrolley option, and the expense and environmental problems it may avoid, might prevent large investments in overhead wire trolley projects destined never to be completed.

But there is an important caveat:
THE FREEZE-UP RISK

If aspiring new streetcar authorities are scared-off from overhead trolley construction but fear-of-the-untried stalls hydrolley buy-in, then the advantages of a rapid streetcar renaissance are lost.
Thus, it’s in everyone’s best interest to bring a proof-of-concept hydrolley into existence as soon, and as rapidly, as possible.
Due to Mooresville’s desire to be home of the world’s first hydrolley manufacturer, HEAT would like to see Proterra LLC selected as the builder and Charlotte’s CATS be the demonstration site.
presented with thanks from Mooresville and HEAT to JAMES H. GRAEBNER and APTA and to Jean-Paul Moskowitz of ALSTOM, Paris, France

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