



SMART's Rail Vehicles

White Paper No. 5

It's the quiet that surprises you first. As the sleek, modern train pulls into the station, you're struck by just how little sound it makes. You and other passengers step on board, one bringing his bike and another, her suitcase. Several hands grip coffee cups. You start to crave some yourself, when you notice it being sold on-board at a small kiosk. Once fueled, you sit in your comfortable seat and prepare for the ride.

The train glides smoothly along its brand new tracks, through towns and wide open green spaces. Pulling yourself away from the scenery, you remove your laptop from its case and tap into the train's wireless internet service, checking the morning headlines as you sip your java. Before you know it, the conductor announces that your station is next. You pack up your laptop, reluctantly, as you arrive refreshed at your final destination, vowing to bring your grandson the next time he visits.

This is not a dream. It's the rail service being proposed by SMART.



Bombardier Talent (light DMU)

The rail vehicles that will be used are state-of-the-art: clean, safe, smooth, quiet and efficient. And while these vehicles would use standard railroad tracks, this is clearly not your grandfather's railroad.

Rail systems that use standard gauge tracks are found all over the world and are expanding in the Bay Area. In its 2007 Regional Rail Plan, the Metropolitan Transportation Commission (MTC), our regional transportation planning agency, called for a network of these rail systems to serve parts of the Bay Area not served by BART.

Interestingly, BART itself is considering the use of Diesel Multiple Unit (DMU) trains on standard gauge tracks in several potential extension corridors, including the Tri-Valley toward Livermore, eastern Costa Costa County beyond Pittsburgh/Bay Point, and western Contra Costa County north of Richmond.

These DMU trains are the same type of trains proposed by SMART. With this technology, there is no need for a locomotive to pull a line of passenger cars. Rather, each



Colorado Railcar (heavy DMU)

passenger rail car can also have its own power sources and can be capable of its own propulsion. This makes sense for corridors that don't require long trains, since the power provided by a locomotive would be unnecessary and inefficient.

DMU trains are commonplace in Europe. In North America, they can be found operating in Ottawa, on South Florida's Tri-Rail system, on New Jersey's River Line and on San Diego's Oceanside-Escondido line.

There are two main types of DMUs, "heavy" and "light." Heavy vehicles have a steel body and are designed to comply with Federal Railroad Administration (FRA) regulations for passenger trains that operate in an environment with freight service. Light DMUs are made of lighter materials like aluminum. At present, the FRA only permits use of these trains if they operate at a time when no freight service is present, or if they are strictly time-separated from freight. An exception might be made for railroads that employ positive train control, a sophisticated new railroad monitoring and communication system designed to maximize train safety.

SMART evaluated the use of heavy DMUs in its certified 2006 FEIR. It is also currently evaluating the use of light DMUs in a Supplemental EIR. Such a vehicle would either use positive train control, or would involve freight service that only operates during off-peak commute hours when SMART's passenger trains are not running.

Regardless of which type of DMU is selected, however, the trains will be environmentally friendly. SMART trains will use the latest generation of clean diesel technology, along with ultra-low sulfur fuel (USLD). The vehicles will also incorporate high-efficiency catalytic after-treatments such as particulate filters, selective catalytic reduction systems, and NOx absorbers.



Siemens Desiro (light DMU)

By shifting trips away from polluting automobiles, the SMART service will reduce greenhouse gases, and other pollutants like the precursors of smog and particulate matter (See White Paper No. 2 for more about SMART and Climate Change and No. 7 for details about Air Quality).

New diesel fuels and technologies are so promising that many automakers including Audi, BMW, Mercedes, Nissan, Honda, GM and Volkswagen are incorporating them in their 2009 and upcoming model years. Some recent news stories have speculated that these "green diesels" will outpace hybrids in both fuel economy and sales.

SMART is committed to using the most up-to-date, practical and greenest technology available for the North Bay's rail service. It will monitor advances in vehicle technology and other industry practices to ensure that it leads the rail transit industry.

For more information about the SMART rail and train project, go to www.sonomamarintrain.org or call SMART's information line in Marin, 415-419-3510 or Sonoma County 707-583-2322