

California Rail News

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Subsidies Can't Save the SUV

GAS PRICES DRY UP GM PROFITS, FUEL RAIL GROWTH

Do Californians love big cars and SUVs so much that they would pay any price to keep driving them? Maybe not. According to California car dealers, price matters a lot.

Two years of major oil price increases seem to have put some surprising changes into motion. The hottest-selling car today is the fuel-saving Toyota Prius hybrid, central city residential property has become a hot commodity, and California rail ridership has hit all-time record highs.

Meanwhile SUVs were selling so poorly because of \$50 refills that General Motors debt bonds were downgraded to junk. GM's response was a huge fire sale of SUVs, first to employees and retirees, now to nearly anyone. This has caused short-term gains, but is unsustainable. With this subsidy, GM is closely mimicking the short-sighted economics used by highway builders.

State and federal taxes at the gas pump annually fall about \$35 billion short of covering the basic costs of highway construction and maintenance. Decades ago, highway lobbyists might have been able to honestly claim that "user fees" paid all the costs.

These days, the 44 cents a gallon US average doesn't even keep the asphalt in good shape, and roads suck billions from the general fund. What level of gasoline tax would eliminate the subsidy of roads? Most experts familiar with transportation funding say it would take at least a \$2 per gallon levy today to stop the red ink on roads.

The subsidy of oil fueled the mindless urbanization of vast areas of California, an arms race of aggressively large vehicles, and a dependence on foreign oil that even George W. Bush now admits is an addiction. In July, Bush said, "We're hooked on oil from the Middle East, which is a national security problem and an economic security problem."

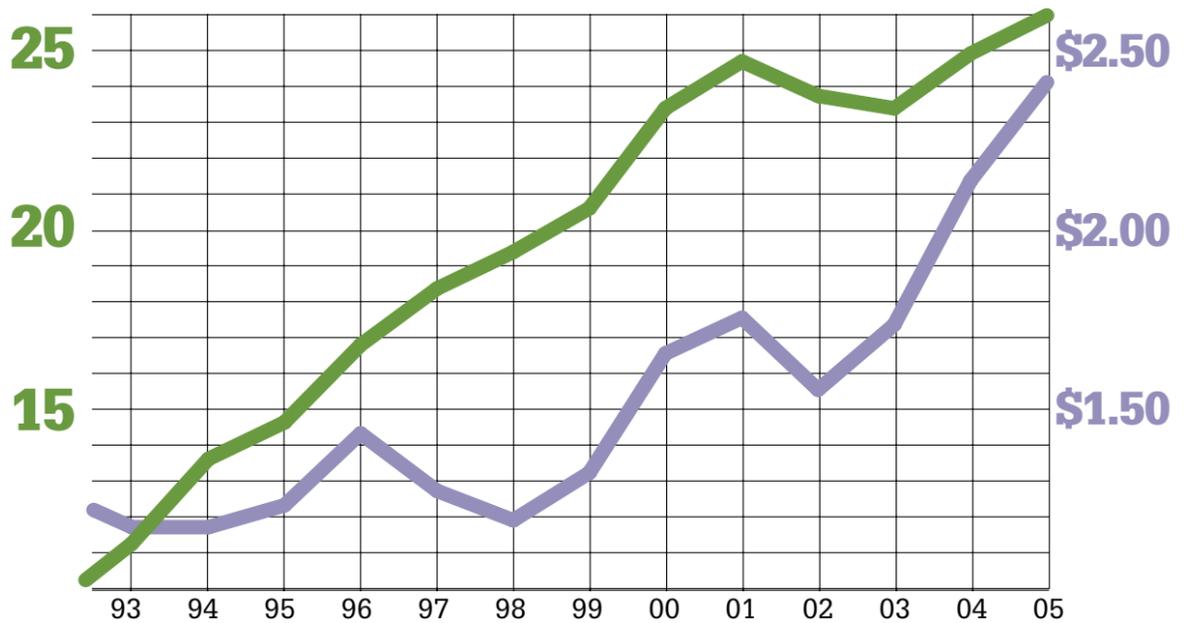
Several times already, oil has broken through the \$65 level, and Goldman Sachs predicts that \$105 a barrel oil is a possibility in the next year, because of massive increases in third world consumption and long-term limits to refining capacity.

It is obviously time for a change in tax policies to encourage energy conservation, public transportation use, and alternative power, including electrification of rail. Past policies no longer make sense, now that we

Rail Ridership vs. Gas Price

(millions) CA Amtrak & Commuter Rail

Source: USDOE, West Coast Regular Avg.



are at the end of the road on highway-based development.

Transportation Secretary Norm Mineta was in full-scale denial last month as he announced faintly tightened fuel economy rules for trucks. "This is a plan that will save gas and result in less pain at the pump," said Mineta.

However, the new regulations ironically excluded some of the worst fuel offenders on the road, including the Hummer H2, Ford Excursion and Chevy Suburban. Mineta, staying defensive, told reporters the timing of the announcement "was not related to the price of gas at all."

As usual, the public has seen the light far sooner than politicians. Californians focus on what they pay at the pump, and they don't like the prices. As gasoline prices have reached new peaks in the past decade, rail ridership has done the same. The only break in rail growth was the two year softness in gasoline prices from 2001 to early 2003.

With \$65 a barrel oil, state and federal subsidies just can't keep gas prices in a comfort zone for motorists. Even absent reform of gas subsidies, it's becoming obvious that trains are the future..

INSIDE

PAGE 4
COAST
OBSERVATIONS

PAGE 6
FRA REGS BASED
ON BAD SCIENCE

PAGE 7
NEW STIP FUNDS
TO FIX SURFLINER
BOTTLENECK?

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Auto Apologists Vs. Amtrak

by Gerald Cauthen

Editor:

I was surprised to read in the June-July Rail News that "Sonoma-Marin rail planners . . . Are seriously considering the use of refurbished Budd RDC cars manufactured some 50 years ago!"

I've been following the Sonoma Marin Area Rail Transit process since its inception in 1998. At no time was SMART "seriously considering the use of refurbished Budd RDC cars. . . ." At the earliest stage of SMART, Budd cars were listed among a wide range of possibilities, but were never seriously considered.

I saw this process up close because I was appointed to the SMART Vehicle Advisory Committee in the fall of 2000. SMART staff went out of their way to ensure that the committee would represent all viewpoints, even appointing one Marinite who had been vehemently opposed to passenger rail in the North Bay. There were, as I recall, fifteen of us, including the Sonoma County Transit Director, the Executive Director of North Coast Railroad Authority, and Golden Gate Transit's Principal Planner.

At every meeting the process was facilitated by Rick Brown of Results Group, and we had at our disposal members of two of SMART's rail consulting firms, LTK and HDR, both of Sacramento. Tom Matoff was present throughout the process as a key player on the consulting team.

At, I believe, the second meeting, presentations were made by representatives of Colorado Railcar, Alstom, Bombardier, and Siemens. Subsequently, the VAC made a day-long tour, riding Muni Metro light rail, BART, Altamont Commuter Express, and Amtrak's Capitol Corridor. Results Group even arranged to have operations people host us and answer questions on our ACE, Amtrak, and BART rides.

The vehicle types we considered were locomotive-hauled bi-level, locomotive-hauled single-level, FRA-compliant DMUs, "railroad" light DMUs, and "transit" light DMUs.

At our final meeting we voted. Rick Brown emphasized that although consensus might be desirable, the option of majority report and minority report was open to us. We were then polled, and the vote was strongly in favor of locomotive-hauled bi-levels. Locomotive-hauled single-levels were second, compliant DMUs were third, and railroad and transit light DMUs last in that order. When Brawn asked if we had consensus, no one spoke in opposition.

The SMART board, on presentation of our report, named compliant DMUs as the preferred vehicles, with locomotive-hauled railcars and light DMUs as the second-tier choices.

Lionel Gambill

Mr. Wendell Cox dislikes passenger rail systems. He speaks continuously on this subject with an almost Olympian sense of self-confidence. But who are we to knock his manner? It has served him well. It gets attention.

Usually he doesn't stray far from his main subject, which is to discredit all forms of passenger rail service except as applied to cities like New York that couldn't function without it. His attacks are as predictable as they are persistent. Americans love their automobiles, proclaims Mr. Cox, "and besides, passenger rail isn't cost-effective".

Visit Mr. Cox's website and you will find his lengthy "Curriculum Vitae": cross-country runner, commissioner, councilman, visiting fellow, adjunct scholar, adjunct fellow, advisor to governments, etc. He uses this background effectively to aggrandize his role as executioner of rail and unabashed apologist for a society dominated by automotive forms of travel.

To Mr. Cox, few if any of America's passenger rail services are of any use. Mr. Cox would have us believe that Americans love their automobiles too much to take trains and so it's pointless to waste public funds on passenger rail systems.

Underlying his aggressive pronouncements is a sweeping, but largely unstated premise; namely, that automotive forms of travel pay their own way.

How often have we been told that no general funds are used to pay for automotive and truck travel because the roadways are built and maintained with gasoline taxes collected at the pump? This premise is false. Yet Mr. Cox's constant attacks on trains invariably rely upon specious comparisons between the allegedly high costs of passenger rail service and the "pay as you go" costs of driving.

The truth of the matter is that automobile and truck travelers don't come even close to paying the full public costs of their driving. On the contrary American roadway users are the single most lavishly subsidized large group of people in the world. If you doubt this, read on.

According to the American Petroleum Institute, in 2004 gasoline taxes in this country averaged 44 cents a gallon, compared to \$3 to \$4 a gallon in Europe and Japan.

Why so large a difference? The answer is not hard to find. Our gasoline taxes are uniquely and unreasonably low because they don't begin to cover the total public costs of driving. In fact the amounts collected in this country are so low that they are more than eaten up by the cost of building and maintaining roadways.

Not covered by gasoline taxes are the public health costs of air pollution and roadway accidents, the lost time costs of congestion, the environmental and other costs of auto-induced sprawl, the social costs of neighborhoods ripped by freeways and, most of all, the huge geopolitical costs in blood and money of having to acquire our fossil fuel energy from hostile parts of the world.

It gets worse. By failing to adequately tax automobile and truck use, the state and federal governments of this country encourage more driving than would otherwise be the case and the building of larger and less efficient vehicles than would otherwise be the case.

Along with Vice President Cheney, some people might rejoice in this, boasting that it's an American's God-given right to squander energy if he feels like it, but there's a catch. When the flow of overseas oil falters for any reason, gasoline prices immediately rise. When there's a vacuum it gets filled.

By failing to recover the full public costs of driving, the American state and federal governments allow international oil executives and the oil-producing countries to pick up the slack.

In other words, by failing to charge enough in gasoline taxes our government encourages more gasoline consumption and thereby increases the outflow of American dollars to the hostile countries and international corporations who control the flow of oil. Billions of dollars a year that could be going into the U.S. Treasury instead go overseas and into the coffers of outsiders, some of who would cheerfully blow our country off the planet if they had the chance.

All of this seems lost on Mr. Cox. Blithely ignoring the grotesquely understated costs of roadway travel Mr. Cox continually harps on the high costs of rail travel. In this manner, whether consciously or not, he promotes both an increasingly congesting and polluting national transportation system and an increasingly dangerous American dependence on foreign oil.

It would be useful for Mr. Cox and others like him to take note of the impending world shortage of cheap energy and modify their rhetoric accordingly. Obliging roadway travelers to reimburse the government for the full public costs of driving would both remind us of the need to conserve energy and keep some of the dollars now flowing overseas at home.

It is time for people like Mr. Cox to begin talking constructively about roadway travel costs as well as public transit costs.

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TWO VIEWS OF HOW TO ELECT TRAC'S OFFICERS

At the July 15 TRAC Board of Directors meeting, an ad hoc committee consisting of Directors Gerry Cauthen, Neil Bjornsen and Hal Wanaselja proposed an amendment to TRAC Bylaws that would give the Board of Directors instead of TRAC membership the right to choose TRAC's President, Vice-President, Treasurer and Secretary.

After extensive discussion by the Board, Sen. Jim Mills moved and Board Member Michael Dickerson seconded the motion that the issue be resolved by vote of the membership, not the Board of Directors. The motion passed with Ayes by Directors Brandt, Christensen, Dickerson, Franks, Kiesling, Mills, Tolmach. Abstaining were Directors Bjornsen, Cauthen, and Wanaselja.

Members attending the TRAC Annual Meeting will be voting on this issue.

THE EXISTING ELECTION PROCESS:

TRAC members in good standing who attend the annual meeting elect the members of the TRAC Board of Directors and then select the President, Vice President, Treasurer and Secretary from the newly constituted Board.

THE PROPOSED ELECTION PROCESS:

Members attending the annual TRAC conference would continue to elect Board members. Within one month of the annual conference the newly constituted Board would, by meeting or conference call, vote to choose TRAC officers.

ARGUMENT FOR THE CHANGE by Gerald Cauthen

Each year the TRAC members attending the annual TRAC Conference elect 13 Board Members. There is no contemplated change to that process. TRAC members will continue to elect Board Members.

However when it comes to the election of officers there is need for change. As indicated, there are 13 Board members. Some are known to the TRAC membership but because of the far flown nature of the organization, many Board members have little opportunity to meet with or interact with members. As a consequence most of the 13 individuals eligible to be TRAC officers are completely unknown to most TRAC members. Board Members on the other hand

tend to be familiar with the character and abilities of other Board Members, and with current and forthcoming TRAC issues. For these reasons it is felt that the Board itself should select the officers who will preside over Board meetings and otherwise lead the organization.

ARGUMENT AGAINST THE CHANGE by Richard Tolmach

The majority of the Board objected to using a closed meeting to disenfranchise the membership. The consensus was that if such action be taken, it should be a decision by the membership itself made in public.

The 3 Board Members who proposed this change have failed to make a case for its need. Their opinion that the Board has more knowledge than members about whom is qualified to lead the organization is self-serving at best. Board Members, in my experience, are neither more informed nor more qualified to judge character than the TRAC general membership.

Membership organizations thrive due to active members. Disenfranchising members is not a good way to expand membership or encourage member participation. California non-profit corporations have learned by hard experience that anti-democratic methods of officer selection can spark wasteful battles between boards and membership, or between boards and officers. My hope is that TRAC avoids this predictable problem.

TRAC's success in educating and persuading California decisionmakers on key rail issues depends upon Board Members who spend more time and effort on publications and lobbying efforts and less on divisive internal politics. I urge a strong NO vote on the bylaw change proposal. The status quo allows you, the member, to choose TRAC's leadership and direction.

L.A. TIMES CLAIMS GAS IS CHEAPER THAN METROLINK

A front page *Los Angeles Times* article August 18 about how Californians are trying to save money on gas gave short shrift to trains as an alternative.

"There's always money to be saved by taking the train for longer commutes, right?" the *Times* suggested. "Not necessarily. A 70-mile round trip commute from Santa Clarita to downtown Los Angeles would cost \$7 to \$8 in fuel. The same trip costs \$12 on Metrolink," claimed the article.

Actually, most Metrolink commuters from Santa Clarita buy the monthly pass, which works out to \$8.13 per weekday.

The *Times*' gas cost figures appear to be equally slanted. The \$7 fuel figure assumes 27 miles per gallon, quite a bit better than the reported American fleet average of 21. If real gas mileage is used, the average cost of fuel is between \$9 and \$10.

Only drivers of something rather efficient seem to have a chance of beating current Metrolink fares, and that's only if oil, maintenance, insurance and parking expenses are ignored. These obligatory items put costs back far above the \$10 level. SUV drivers with typical performance of 14 miles per gallon have direct costs of \$14 to \$16 per trip and total costs of over \$20. That's a lot more than the \$8.13 on Metrolink.

Coast Observations

SENATORS TRENT LOTT (R-MS), Ted Stevens (R-AK) and Frank Lautenberg (D-NJ) introduced new Amtrak legislation to authorize full funding of Amtrak. The Passenger Rail Investment and Improvement Act (PRIIA) would provide 6 years of funding totalling \$11.4 billion... PRIIA WOULD REDUCE Amtrak's operating subsidy by 40% by cost-cutting, restructuring of debt and reform, while increasing capital funding... OTHER POSITIVE features of PRIIA include a competitive bid program in which freight railroads could bid for long distance trains, a capital program for establishing new state-funded routes, and a process involving the Surface Transportation Board in assuring on-time operation. If the STB determines freight railroads are at fault, the board may take appropriate action to enforce priority access for Amtrak... NEW STATE BUSES starting at the Fall schedule change include more Bay Area feeders to the Surfliners, more Inland Empire San Joaquin feeders, and new service from Palo Alto/Sunnyvale and Monterey connecting to the San Joaquins. Financial performance is to be watched closely to assure profitable operation... CHEF MARIO GOT NOTICE in Congressional hearings, as a Texas congressman repeated the false report by a state rail official in a railfan publication saying Mario's items were profitable. NARP had to set the record straight, noting that labor costs were not included in the calculations of profitability. The actual case is that they have a lower rate of sales than other items... SACRAMENTO LIGHT RAIL continues to expand and change, with a switch of route destinations this month making Watt-I-80 pair with Meadowview and the East Line terminate downtown. Folsom service will be in full test operation by mid-August and work on the Amtrak extension will be in full swing by September. Folsom will begin service October 15 but the opening of the Amtrak extension has been delayed to Fall, 2006... GARY PATTON OF SANTA CRUZ, a longtime environmental activist, is the new executive director of the Planning and Conservation League, of which TRAC is a member. PCL partnered with TRAC on the 1990 rail initiative. Patton is a supporter of passenger rail... SUISUN CONNECTIONS shown in current San Joaquin timetables via Sacramento aren't necessarily all sensible ones. For example, Martinez is the superior transfer point from Train 713 (you can save 41 minutes and a needless bus ride). This item courtesy a helpful San Joaquin ticket agent... AMTRAK FUNDING IS NEARLY secured, but we still need to press for adoption of the bipartisan PRIIA legislation which would improve service and enforce passenger train priority on freight railroads. Please write or send an e-mail to your Senators and Member of Congress NOW to assure you can ride next year to: Hon. _____ House of Representatives, Washington DC 20515 or Sen. _____, Senate Office Building, Washington DC 20510. At www.trainriders.org you can click the flashing blue button that allows you to enter your zip code and get the name of your member of congress, then click to send an e-mail...

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Richard Tolmach, TRAC President
Alan C. Miller TRAC Executive Director

Signed articles represent the views of their authors, not necessarily those of the above organizations.

1008 Tenth Street, #276
Sacramento, CA 95814
Telephone: 916-557-1667
e-mail: trac@omsoft.com
www.calrailnews.com
www.trainriders.org

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Why Do Montpellier's

by Richard F. Tolmach

Barely five years after its inauguration, the 9.4-mile (15.2 km) light rail line in Montpellier, France carries over 110,000 passengers each weekday, 35,000 more than initial predictions. Traffic was so good that frequencies were increased to every 5 minutes just 14 months after service started.

Still faced with overcrowding, Montpellier then added two more trams and ordered modular sections and extra trucks from Alstom to extend each tram's length from 100 to 125 feet. The fleet now numbers thirty big blue trams.

The Mediterranean city dates from 985 AD but most of the growth that has made it a regional city of 500,000 residents occurred since 1960. Creation of a new suburban campus for its ancient university (Europe's first, by most accounts) produced strains on traffic facilities, and city leaders were eager to knit the community's highly prized historic pedestrian areas together with newly created ones.

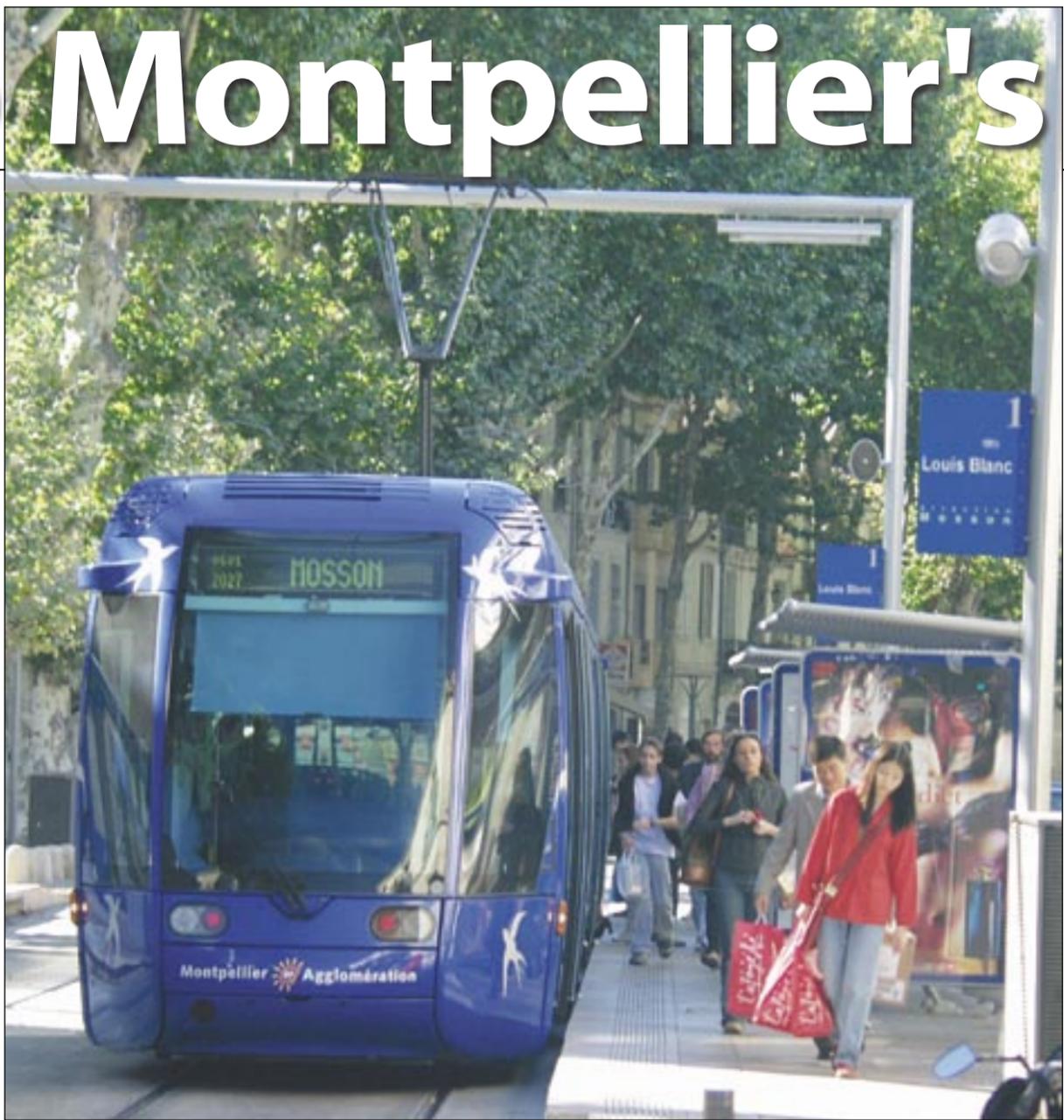
Montpellier's sinuous line, opened in July 2005, runs almost entirely on surface, using tracks laid in pedestrianized streets or turf. There are no street overpasses on the line, but trams ramp down under a portion of the Place de la Comédie which often fills with people. Otherwise, the line is entirely at grade with about 4 level crossings per mile, primarily using traffic signals.

Until about 1985 in France, the conventional wisdom was that a new rail line in the midst of an already-developed city would snarl traffic and cause negative environmental impacts. Then a new light rail line in Grenoble showed that accompanying rail with street calming, center city pedestrianization of streets, and other city-improving amenities was extremely popular with residents. Montpellier made a conscious decision to emulate Grenoble's successful techniques, adopting low-floor cars and giving light rail priority over traffic.

The starter line cost about \$400 million at the time it was built, of which Montpellier put up about three-quarters. However, the city has capitalized on the line's revitalization of its center, and more that recouped the expenditure from development that ensued. The city built a vast convention district around Place de la Europe which has become a favored venue for conferences and cultural festivals, served by both its first tram line and its second 12-mile line now under construction.

A Killer Business Model

Montpellier's success is unique in many ways. TaM, operator of the highly popular line, is not a government agency, but a company owned jointly by the metropolitan government



and French transit operator Transdev. And TaM is not only the tram operator, but runs excellent bus service, rents bicycles from its ticket office at the main railway station, and manages over 16,000 parking places, about a tenth of them on the tram line. TaM is also the manager of the rail extension projects, carried out by private firms on a turnkey basis.

This integration does wonders for TaM's effectiveness at improving transportation. One-stop shopping make it easier to cross-sell allied services and add value. For example, every parking space on the rail line comes with free use of the TaM trams for all car occupants, so as to encourage carpooling to work or events. If you buy a TaM daypass, for an extra fee you can have a bicycle too.

Since TaM's decisions get tipped towards cost-effectiveness by its business model, rail extensions tend to be based on demonstrated traffic on bus routes, diluting the effect of politicians and consulting firms who don't have so much of a stake in the financial success of the next extension.

Service decisions also seem to be made faster and more pragmatically than they would

be under the typical bureaucratic setup. For example, the rapid decision to go to 5 minute headways seems inconceivable in the typical California transit district setting, where endless debates would ensue about the fairness of granting additional service to rail versus bus. In Montpellier, the decisions are typically made on more of a business basis. Additional tramway capacity cost less than the revenues that were being lost by passengers turned off by overcrowding.

Also, by deciding to extend its cars with additional center sections from instead of buying extra sets, industry experts figure TaM saved as much as \$15 million in capital costs, \$2 million in annual operation and maintenance costs for the extra units, and obtained delivery of capacity about two years earlier.

Promoting a Great City

Montpellier's exquisite setting and climate approximate a pre-smog and pre-sprawl Los Angeles. Arriving on a TGV averaging 120 mph on a four hour trip from Paris, it is striking how pedestrian-friendly the city has become since the tramway opened. From the

MANY EXCEPTIONAL FEATURES FOR



Heading to the University, turf track instead of standard railroad open ballast absorbs noise, makes TAM a better neighbor visually.

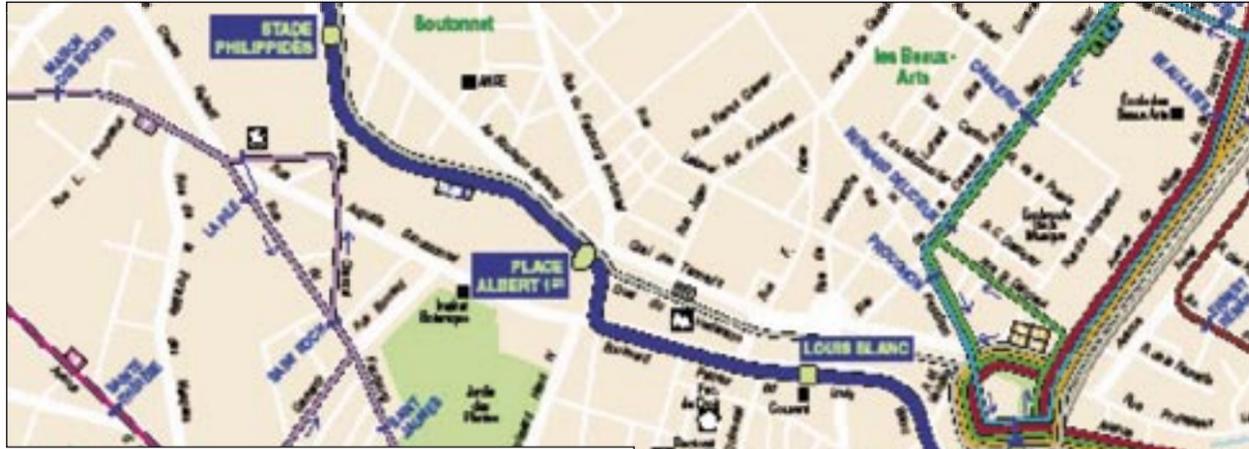


Antigone, the post-modern touchstone of many planners of smart infill growth, is on the line across from the Polygone mall.



TaM's popular Alstom Citadis low floor cars have been adopted by a dozen European tram systems. Rapid boarding speeds travel.

Trams Attract So Many?



TaM Route 1 is in blue, Route 2 is not on this map but you can tell where it will run from viewing the heavy bus traffic at 3 planned transfers: Corum, P. de Lumiere and Gares.

110,000 ride trams daily in this French city with a metro population of only 500,000

front door of the station, you can tell things are set up for the nonmotorized. The tram stop is fifty meters straight ahead, rental bicycles are available from the TaM main ticket office adjacent to the stop, and the pedestrianized tram street is quiet and visually appealing.

The quiet, fast-loading low-floor trams are one of the best features of the system. The interior design of the cars is outstanding, with compact but comfortable seating that does not impinge upon thoughtful accommodations for leaning and standing passengers. The cars are comfortable and offer good visibility for riders even at 100 percent loads.

The daring blue livery emblazoned with white swallows is not just good marketing for TaM, because the tramway acts as an effective advertisement for the new vitality and individuality of the community it exemplifies.

Montpellier has a vibrant city center, now that traffic on its narrow streets has been quelled. The vast Place de la Comédie sporadically becomes a street market with vegetables, fruit, cheeses and olive, and is the setting for musical performances and seasonal festivals. It fronts onto one of the most beautiful medieval cities in southern France, on hills to the west.

All along the most traffic-impacted parts of the route, landscaping, fountains, and art make the line an improvement to the neighborhood, increasing the amenities for pedestrians and making a walking trip to the tram stop more appealing. North of the center city, on the way to the University, the tramway is paralleled more than half its distance by a bikeway which benefits from the protection from traffic.

Even though the metropolitan rate of auto ownership is in the same range as that of San Francisco or even Santa Monica, there has been a tremendous shift in travel mode towards the tram. TaM projects that once the



Source: TaM

third line is built, average daily ridership on its network will exceed city population.

But, Why So Many Riders?

How does a 10-mile tramway in a 500,000-person city carry nearly the passengers of Los Angeles' \$1.8 billion Metro Red Line Subway? Even more so, how does it blow away systems in Baltimore, Miami, or San Jose that are many times its length or cost?

There certainly are many other factors, but it is difficult to deny the importance of the fol-

lowing ones in Montpellier:

- Route and engineering design quality
- Attractive design and marketing
- Integrated scheduling with buses
- Low floors, level loading
- Direct connection to national service

However, the most compelling reason for Montpellier's triumph appears to be creation of a company jointly owned by local government and a competent, stable private firm with a fiscal stake in the continuing success of service.

CALIFORNIA SYSTEMS TO EMULATE



Transfers to bus feeders at hubs are key to the success of the TaM network. This one is Corum, transfer point to soon-to-open line 2.



TaM responded to success by upping service to every five minutes 7 am to 7:30 pm, barely two years from the start of tram service.



Center city routing is circuitous to provide access to the top 3 destinations: Place de la Comédie, intercity stations, and Polygone.

FRA REGS ARE BASED ON BAD SCIENCE

HISTORY & PHYSICS BEHIND THE BUFF STRENGTH DEBATE

by Wayne S. Williams

On April 17, 1973, I handed in my final exam for my BSME at Pitt, got on a plane that afternoon from Pittsburgh to the Bay Area, and was on the SP payroll the next day. It was a dream job made possible by my junior year internship at the West Colton Yard construction project, working as a junior rodman for the amazing Godfrey Lyon, as a result of a phone call I placed directly to Harry Williamson, SP's Chief Engineer. I reported to work at the Mechanical Department, got a grey metal desk in a bullpen, surrounded by cheap yellow-paint walls, and I was in heaven, with the exception of the unofficial "no-pretty-women-on-the-payroll" rule. (D.J. Russell thought that would be distracting to us guys.)

Wally Greb was my boss, and William Thompson was his boss. Bill Thompson was the Chair of the prestigious AAR Car Construction Committee, and everybody else in the scarce One Market Street 3rd floor cubicles (Mechanical Department Managers) were on every other AAR committee you could think of: WABL, Coupler & Draft Gear, Open Top Loading, you name it. My boss (Wally) very reluctantly agreed to be on the important Tank Car committee, only if SP agreed to cover his potential lawsuits. I think Mr. Biaggini had to sign off on that one.

INSIDE AAR'S CAR COMMITTEE

At Pitt, I had years of access to the Westinghouse mainframe computer systems, so I came to SP as a fully loaded engineering computer geek. Bill and Wally assigned me to perform stress analyses and engineering calculations to support the AAR committee activities, where proposed new freight car design configurations were reviewed and approved before they were allowed into interchange service.

Bill was a class guy and a real railroad man, and he didn't warm up to cocky young up-starts, which is what I was. Somewhere in 1973, Bill got a submittal from American Car and Foundry (ACF) for a freight car design dubbed the "Glasshopper". Seems that ACF wanted to take fiberglass ICBM fuel tanks, attach a steel structure at each end, add trucks and whamo, instant hopper car. Bill gave me the stress analysis task, which was tricky because fiberglass material properties depends on which direction the fibers are imbedded and forces applied. At any rate, my report said this railcar would break in a certain place. Three weeks later, Bill advised me that the damn thing broke right where I said it would. My credibility went up with Bill.

After that, I was given an entire copy of the M-1001 AAR Design Manuals, which I absorbed like a sponge. Although many people in the industry had these manuals, and were familiar with the engineering calculations, my task was different. As Chair of the AAR Car Construction Committee, Bill frequently fielded proposed additions or modifications to the rules, and I was to analyze and make recommendations on these proposals. I had another advantage. The original author of the AAR freight car design criteria was Cedric Leriche, who held Bill Thomford's position at SP before he retired, and Mr. Leriche was a frequent visitor to One Market 3rd floor.

At the same time, I had also been appointed to the SP Track-Train Dynamics Team, headed up by Ed Lind after his return from running the joint FRA-AAR-RPI research program that addressed mechanical and operating problems that resulted from

an industry change from 70 ton to 100 ton equipment. We had a bunch of new computer simulation tools, and the most important one was the Train Operations Simulator. Norm Luttrell from the Engineering Department wrote this program, and now applied it to solve the big derailment headaches at places like Tehachapi, the Cantera Loop, and Arkansas hogback territory. Norm simulated the worst possible train operations conditions, and we curiously noted that we rarely calculated a draft load in excess of 350,000 pounds. A buff load of 275,000 pounds was enough to derail a train either by jackknife or rail rollover. Even nasty train action run-ins and run-outs did not result in buff or draft loads anywhere near the AAR criteria.

So it was inevitable that I had to ask Mr. Leriche about the origin of the 1,000,000 pound buff force axial load requirement for freight car design. Cedric's answer was very simple: at 600,000 and 800,000 pound design loads, coupler yokes and draft gears kept getting yanked out, so the design load was increased until the failures stopped. That reminded me of the famous phrase used in freight car design, "steel is inversely proportional to brains", and Cedric acknowledged that was pretty much how we got to 1,000,000 pounds.

NASA had developed an entirely new computer based structural analysis process called finite element analysis, and the original program was called NASTRAN (NASA Structural Analysis). In 1976, I performed one of the very first computer based finite element design analyses in the railroad industry. Seems that one of Bill Thomford's personal design projects, the sliding center sill Hydra-Cushion™ boxcar in auto parts service was failing in the huge casting that held the fixed center sill and body bolster together. The analysis required 5,000 punch cards (computer geeks today have no idea what a pain in the neck punch card computing was in the 70's). The analysis showed that the freight car design was fine, but that vertical bouncing caused by poorly maintained panel track outside of Tonawanda NY on the emerging-from-bankruptcy Conrail system was the problem. The key to solving this mystery came from Bob Austill, who noticed that the spring coils in the trucks were deformed from bottoming out. Subsequent engineering analysis focused on vertical ride quality and vibration stability, and that solved the problem.

This was one of my first clues about why the AAR Design Manual is out of whack with the real world. In a nutshell, the structural design requirements have been continually ratcheted up over the years to compensate for a variety of instabilities in both train action forces (longitudinal) and freight car suspensions (vertical bounce and lateral "rock-and-roll"). It was exactly like Mr. Leriche said: if something broke, the structural requirements were increased until the problem went away. Even worse, rather than analyze the engineering problems with the appropriate (but more complex) dynamic analyses, the AAR Car Construction Committee decided to stick with static equivalent structural analysis.

Personally, I did not understand this decision, because it results in freight cars being much heavier than they need to be. Think of all the weight and fuel savings that the railroads could enjoy. Finally, I found out what the real problem was.

Advanced structural analysis (especially in aerospace, automotive and bridge applications) utilizes fatigue analysis that considers the full spectrum of load magnitudes and frequency. In another Track-Train Dynamics effort, the railroad industry actually tried to study the real world force spectrum to better understand and modernize design require-

ments. I was on a test train in 1976 where we had a new fabricated truck design strain-gauged, and we were recording forces and loads in all kinds of operating conditions. We were not seeing anything near the AAR design criteria.

DESIGN FOR NEEDLESS ABUSE

One night, our test train consist was stopped in the Pine Bluff (Arkansas) yard, and I was standing on the test car vestibule, when the cut of hopper cars next to me was heavily impacted by a cut of loaded boxcars that was just sent down from the hump. The impact was so hard that the hopper car body came off the trucks for a moment. Subsequently, we heard overspeed impacts all over the yard that sounded like bombs going off everywhere. We called the yardmaster to find out what was happening, and it turned out that some desk-pounding Operating Department big shot was mad because the receiving yard was all backed up, and he just finished chewing out the Yardmaster. So the Yardmaster just turned off the retarders and shoved everything over the hump. Watching these huge overspeed impacts turned on my light bulb regarding the problem with the AAR design criteria.

The 1,000,000 pound buff requirement is based on an abusive operating environment where railroad management and labor have been beating the living daylights out of the freight car equipment in switching and hump yard operations. Instead of controlling the operating environment, where incredible savings in weight and fuel can be realized, it is easier to beef up the equipment to accommodate a violent environment. And thanks to the FRA, the passenger car design requirements simply adopted some of the AAR numbers (especially the 1,000,000 pound axial load requirement) without consideration of the history and background of the engineering criteria.

As a member of the APTA Shared Use Right-of-Way Working Group, I shared these insights recently with FTA and FRA representatives. The entire passenger rail industry knows that FRA regulations are stifling competitiveness with other transportation modes, and are looking for realistic relief from excessive regulation. Current FRA decision makers were advised point blank that existing structural requirements have nothing to do with safety. Who cares if a passenger car survives an impact if all the riders are crushed against a bulkhead?

Using an analogy provided by a friend, this is like putting a mouse in a safe, throwing it off the Empire State Building, and congratulating yourself because the safe survived, even though the mouse didn't make it. Despite the overwhelming evidence of the inappropriateness of the 1,000,000 pound criteria (versus crash energy dissipation and safety performance criteria), the FRA stubbornly refuses to consider any alternative.

According to the History Channel, the auto industry caught on to the problem of excessive vehicle stiffness and the relationship to injuries when fighter pilots in World War II were experiencing more fatalities from off-duty car accidents than from combat activity. The results were seat-belts and crumple zone design evolutions. Thanks to the FRA, we in the passenger rail industry are forced to ride 1945 Packards.

Eric McCaughrin's article in the last CRN ("FRA: Keeping Rail Safe and Obsolete") was a shot in the bullseye. The FRA, for whatever reason, is the single most significant impediment to the future success of the passenger rail industry. It is my hope that revelations of the FRA's intransigence will cause rail advocacy groups across the nation to bind together in a strong effort to get the FRA pointed in the right direction.

UNION CITY PLANS INTERMODAL STATION

by Gary Perazzo

The proposed Union City Intermodal Passenger Station Rail Project released its Environmental Impact Report in April spelling out its goals, objectives and description. The transit riding public will benefit from the more efficient use of the various transportation agencies. BART and the Capitol Corridor will have a new cross transfer platform in the south part of the East Bay at Decoto in Union City. The Capitol Corridor will be shortened slightly between San Jose and Oakland.

Additional double track will be gained to separate freight and passenger trains. Although not currently planned, future use by ACE (Altamont Commuter Express) would allow for a connection to BART which currently doesn't exist. And, when the Dumbarton Rail Project proceeds, this station will allow a terminus point for patrons to transfer from BART to Peninsula bound trains.

According to the EIR, "the goal of the proposed project is to increase public transit patronage by creating a facility that provides for the safe, convenient, and efficient transfer of transit patrons between various transportation modes." The concept is fairly simple. It takes the Capitol Corridor trains off the Union Pacific (ex-SP) Niles Subdivision and places them on the UP (ex-WP) Oakland Subdivision. This will be accomplished by creating a connection at Shinn off of the UP Centerville line to the Oakland Subdivision at the south end and a connection near Industrial Parkway where the Oakland Subdivision crosses over the Niles Subdivision on the north end. Three

options for layover yards for trains operating on the future Dumbarton line are included.

A project like this is not without tradeoffs. The EIR points out that it will remove fast moving passenger trains from populated neighborhoods along the Niles Subdivision and place them near lesser populated ones along the Oakland Subdivision. The curved connection at the Shinn end will add wheel squeal and vibration to the adjacent neighborhood. However, this can be mitigated by a sound wall, curve greasers, non jointed rail, spring rail frogs, and ballast mats or shredded tire underlay.

The City of Fremont, which borders Union City to the south, is objecting to the plan, calling it "ludicrous, crazy and

obscene." Fremont objects to any layover facility being built in Fremont and questions whether the sound mitigation for the connection at Shinn will be effective.

Fremont is taking the "NIMBY" stance and says this project doesn't fit into its General Plan. Gene Skoropowski, Executive Director of the Capitol Corridor, says they have been working closely with Union City and thinks that this project will enhance the corridor operation and, after the station is operational, the viability of the Hayward station stop would be re-evaluated. He said that the Union Pacific is also in favor of the project because it will allow better separation of freight and passenger operations and less impedance on the Altamont route.



BART TO S.J. DUCKS FTA COST REVIEW

by Gerald Cauthen

TRAC normally supports rail development projects. However, the multi-billion dollar BART Santa Clara extension has become an embarrassing boondoggle that can only survive by evading federal rules. In the latest maneuver, Rep. Mike Honda, (D-Campbell) slipped language into the FY 2006 Transportation Act (TEA-LU) exempting the project and three others from federal cost-effectiveness standards.

The Federal Transit Administration is the federal agency responsible for ensuring that federal money allocated to public transit projects is well spent. In its Mission Statement the section under "Excellence" characterizes the FTA as committed to "...being the best and delivering the highest value for American investment". Under "Leadership" FTA promises to "...lead and inspire change that adds value". Delivering the highest value and adding value are what cost-effectiveness is all about. If a public project is not cost-effective it's generally not worth building. One of the ways that the FTA tries to ensure that federal transit dollars are spent wisely in accordance with the goals it has established for itself is to set up appropriate cost-effectiveness and other performance criteria in advance, so that each proposed project is judged fairly on its own merits without bias or prejudice.

At least, that was the hope.

TEA-LU, signed into law by President Bush on August 12th, carries a price tag of \$286 billion. According to the Oakland Tribune, TEA-LU contains no less than 6,361 pork barrel projects. According to Tom Shatz, President of Citizen's Against Government Waste, TEA-LU constitutes "the biggest boondoggle in the history of

federal spending".

The special treatment granted in TEA-LU to the BART project is a good example of how pork barrel allocations diverts badly needed capital improvement funds from other, more deserving projects. Earlier this year the FTA made a cost effectiveness evaluation of the FY 2005/2006 capital improvement proposals. The proposed BART extension doesn't come even close to making the grade. In fact, according to an editorial in the *Palo Alto Daily News*, the BART proposal came in dead last out of 27 national candidates. Because of its poor cost-effectiveness rating and also because of the adverse effect on VTA operations that would be imposed by a very costly new BART line, FTA gave the BART-to-San Jose proposal a "NOT RECOMMENDED" rating.

The reasons for the project's rock bottom cost effectiveness are not hard to fathom. BART-to-San Jose would extend BART 16.3 miles on a hooked path from Fremont via San Jose Diridon Station to Santa Clara. Because of the indirect route and low zoning densities along the route including sprawled out hi tech "campuses" in Silicon Valley, each surrounded by acres of free parking and served by fast arterials and freeways, it is virtually impossible to effectively serve the area by rail. Patronage calculations show conclusively that the anticipated patronage is far too low to justify the huge cost of the project. Under such circumstances, common sense dictates that the proposal be dropped from consideration.

Or so one would think.

However, apparently not in San Jose. Enter the politicians. In San Jose there is a cabal of local boosters who think they should have whatever they want regardless of fairness and practicality. This group is dominated by the Silicon Valley Leadership

Group (SVLG). The SVLG proclaims that BART-to-San Jose would be just the ticket to solve San Jose's transportation and traffic congestion problems. The fact that this contention is totally without merit as indicated in successive patronage analyses and cost estimates is apparently of no consequence to the SVMG and its supporters. To this group it's the "prestige" of having a BART line that counts, not its ultimate usefulness and certainly not its cost.

Given the worthy goals expressed in the FTA Mission Statement it is reasonable to assume that FTA, if left to its own devices, would try to ensure that only cost-effective projects were approved for federal funding. In other words there is little if any chance that BART could qualify for federal funding through any legitimate federal evaluation process.

The "BART or bust" cabal apparently prevailed upon Congressman Honda to insert language into TEA-LU with this in mind. The language is designed to subvert the federal evaluation process so as to allow the BART proposal and three other favored "clinkers" to bypass the usual hurdles that all other projects have to meet. Here's what Congressman Honda added:

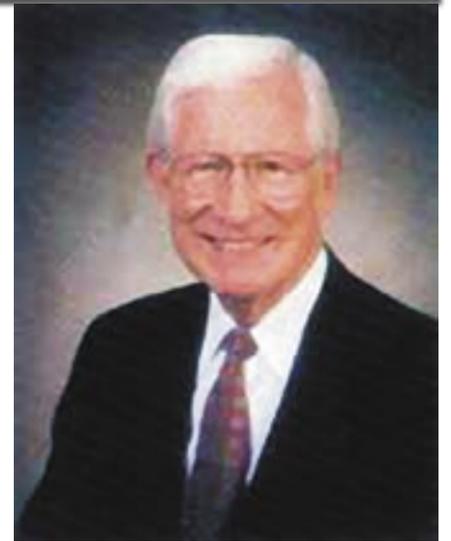
The requirement that a project should require a "medium" cost-effectiveness rating in order to earn a "Recommended" rating by FTA "shall not apply to the following:

- (1) San Francisco—Third Street LRT Phase I/II.
- (2) Santa Clara Valley Transit Authority—Silicon Valley Rapid Transit Corridor.
- (3) Washington County, Oregon—Wilsonville to Beaverton Commuter Rail.
- (4) Dulles Corridor Metrorail Project (DC)—Extension to Wiehle Avenue.

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KEYNOTE SPEAKER **Gil Carmichael**

Senior Chairman, Intermodal Transportation Institute, University of Denver:

THE CASE FOR INTERSTATE II: INTERSTATES OF STEEL

Gil Carmichael was head of the Federal Railway Administration (1989-1993) under Bush I; he was also chair of the Amtrak Reform Council. As recently as 1987 he promoted a 1000-mile highway expansion in his native Mississippi. In 2005, he is promoting Interstate II, a federal investment in America's rail infrastructure equivalent to the 1950's mandate that built the asphalt system. He came to believe in rail as our transportation future because, he says, "... there are no alternatives. . . conventional solutions built around individual modes simply cannot cope with the growth . . ." Mr. Carmichael makes the case for putting the needed investment into a national system of newly modern railway routes capable of handling 21st Century transportation needs--both freight and passenger. He compares the opportunity with the massive constraints facing highway and airport expansion.

FEATURED SPEAKERS

Linda Culp, SANDAG Representative on LOSSAN Corridor **30 YEARS OF GROWTH ON CALIFORNIA'S MAINLINE**

Linda will expand and update her presentation to our board in San Diego, speaking about the entire southern coastal rail corridor including: Surfliners, Coasters, Metrolink, interaction with freight service and future corridor plans.

Gerald Francis, GM of Rail Operations, LAC-MTA **CALIFORNIA'S BIGGEST FLEET GROWS SOME MORE**

Gerald will speak to us about the new light-rail cars capable of operating on all three LA light rail lines and what it took to create these cars; he will update us on the signaling upgrades on the Gold Line; and of course he'll fill us in about planned upgrades and expansions in rail service throughout LA County.

Pat Montague, Board of Directors, NARP Region 12 **BUILDING A DYNAMIC RAIL PASSENGER MOVEMENT**

Pat will give us an overview of the year's contentious fight over Amtrak funding and how it raised awareness of the importance of a national rail passenger network; he will then update us on the current status of this year's progress; he will also speak on the importance of the relationships between NARP and its state affiliate organizations, and specifically with TRAC.

Wayne S. Williams, Principal, **W. S. Williams & Associates, Rail Transportation Consultants** **DESIGNING MODERN RAIL FOR THE NEW MILLENIUM**

Wayne will illustrate and expand upon his article on how America came to be saddled with the current FRA regulations (see page 7) and show us some examples of the modern rail technologies including DMUs and integrated modular sets possible outside current, artificial FRA constraints.

FEATURED PANEL

PUBLIC NEEDS VERSUS CROWDED TRACKS

Hon. Hannah-Beth Jackson,
former State Assembly Member

Linda Culp, SANDAG Representative
on LOSSAN Corridor (see above)

Lea Simpson, Capital Projects North,
Caltrans Division of Rail

Metrolink representative (invited)

Moderator, TRAC President Richard Tolmach

This panel will examine California's regional needs for more intercity and commuter rail service and various ways rail operators can squeeze more capacity out of tracks and existing sets of rail equipment.

Hannah-Beth is active in COAST, a Santa Barbara-based group advocating commuter rail alternatives to Route 101 widening. Linda has led the planned expansion of track capacity in San Diego County for SANDAG. Lea is Caltrans' new capital projects manager for the San Joaquin. Richard was author of the piece in July's Rail News advocating a set of hourly headway services for Southern California.

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