



**Item #06-6-19
Workshop**

SACOG Board of Directors

June 8, 2006

Metropolitan Transportation Plan Issue Paper – Interregional Connections

Issue: What information do Board members need about interregional connections, leading up to the 2007 Metropolitan Transportation Plan?

Recommendation: None. This is a workshop presentation.

Committee Action/Discussion: This will be the tenth in a series of as many as 18 issue papers leading up to the 2007 Metropolitan Transportation Plan. Others still in the pipeline include:

- Energy Considerations
- Air Quality Considerations
- Cross-river Access
- Major Activity Center Access
- Travel Behavior
- Transportation Funding
- Phasing Transportation and Land Development
- Key Understandings for the Plan

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SACOG ISSUE PAPER FOR 2007 MTP

Interregional Transportation Issues

This paper explores issues and choices related to interregional connections, travel, and freight. Interregional connections are important for sustaining and enhancing the economy and lifestyle for those who live, work, visit, and do business in the Region, and for people and freight passing through to and from other regions. How adequate are the Sacramento Region's interregional connections for passenger and goods movement? How does local travel affect interregional connections and through traffic? How do improved interregional connections impact the region and its growth? What can be done to make interregional transportation work effectively while minimizing impacts within the region?

Interregional Connections and Use

- Highways
 - I-5 South, linking to San Joaquin Valley and Southern California, 4-lane freeway carrying 57,000 vehicles daily, of which 13,900 (24%) are trucks
 - I-5 North, linking to Northern California, Oregon, and Washington, 4-lane freeway carrying 24,000 vehicles daily, of which 7200 (30%) are trucks
 - I-80 West, linking to Solano County and San Francisco Bay Area, 6-lane freeway carrying 129,000 vehicles daily, of which 11,300 (9%) are trucks
 - I-80 East, linking to North Lake Tahoe, Reno, and states east of California, 4-lane freeway carrying 29,000 vehicles daily, of which 5200 (18%) are trucks
 - US 50 East, linking to South Lake Tahoe and central Nevada and Utah, 2-lane highway carrying 12,000 vehicles daily, of which 500 (4%) are trucks
 - Route 99 South, linking to San Joaquin Valley and Southern California, 4-lane freeway carrying 62,000 vehicles daily, of which 9300 (15%) are trucks
 - Routes 99/70 North, linking to Chico and Redding and across the Sierra, two 2-lane highways carrying 27,000 vehicles daily (16,000 on Route 99 and 11,000 on Route 70), of which 1500 on each route (9% of Route 99 and 14% of Route 70) are trucks
 - Route 49 North, linking to Grass Valley, 2-lane highway carrying 30,000 vehicles daily, of which 1200 (4%) are trucks
 - I-505 Southwest, connecting through western Yolo County from I-5 North into the Bay Area, 4-lane freeway carrying 27,000 vehicles daily, of which 6000 (22%) are trucks
 - Several lower-use highways and roads: Route 20 west to Colusa, Route 16 west to Clear Lake, Route 128 west to Lake Berryessa and the Napa Valley, Route 160 south into the Delta and to Antioch, Route 104 east to Ione, Route 16 east to Jackson, Route 49 south through Gold Country, Routes 89 and 267 into the Tahoe Basin, and various county roads

- Amtrak California and National Amtrak Passenger Rail
 - Capitol Corridor, linking west to Oakland, San Francisco, and San Jose, with 12 trains each way daily, carrying 1850 Sacramento passengers daily
 - San Joaquin Route, linking south to Stockton, Fresno, and Bakersfield, with 2 through trains each way daily plus 4 trains each way served by bus connection at Stockton, carrying 350 Sacramento passengers daily
 - Coast Starlight, linking south to Oakland, San Jose, Los Angeles, and San Diego, and north to Oregon and Washington, with 1 train each way daily, serving about 100 Sacramento passengers daily
 - California Zephyr, linking west to San Francisco Bay Area and east to Reno, Denver, and Chicago, with 1 train each way daily, serving about 100 Sacramento passengers daily
- Interregional Bus
 - Greyhound, using Sacramento as one of its western hubs, linking in all directions with 90 routes daily to large and small cities, carrying about 1500 Sacramento passengers daily
 - Limited express bus services, regional carriers linking to Solano, Amador, San Joaquin, and Nevada Counties basically as round-trip-per-day subscription commuter services
 - Charter bus services, linking to external destinations particularly including Nevada gaming resorts, on a for-hire basis
- Freight Rail
 - Union Pacific (UP) Railroad, linking north to Portland and Spokane, south to San Joaquin Valley and then to Los Angeles and the Southwest, east to Reno and Chicago, and west to Oakland and San Francisco, running about 35 trains (2700 carloads) daily in all directions through Sacramento
 - Burlington Northern Santa Fe (BNSF) Railway, linking north to Portland, Seattle, and Vancouver (BC) and connecting to points east, and south to San Joaquin Valley, Los Angeles and the Southwest, running about 5 trains (300 carloads) daily north-south on UP tracks through Sacramento
 - California Northern and Sierra Northern Railways (short lines) connecting the UP and BNSF to local delivery destinations in the region and up the Sacramento Valley as far as Tehama (near Red Bluff), distributing a modest number of rail cars
- Airports
 - Sacramento International Airport, two main runways and two terminals, 170 passenger and 2 freight-only flights daily, linking directly to 30 cities nationwide and in Mexico, carrying 35,000 daily passengers and 52% of region's air freight (91% in cargo planes and 9% in passenger aircraft)
 - Mather Airport, cargo and general aviation airport with one main runway and terminal, linking to three Midwestern cargo hubs, 5 inbound air cargo flights daily plus connecting flights to smaller cities in Northern and Central California, carrying 48% of region's air freight
- Seaport
 - Port of Sacramento & Yolo, small inland port with 30-foot-depth/75-mile-long ship channel, five berths currently serving about 3 ships per month, mainly bulk cargoes, with rail and truck connections in West Sacramento

Capacity, Service, and Access

- Interregional travel to, from, and through this region amounts to almost 400,000 people daily, with almost 90% traveling by auto, 9% by air, and about 1% by train and bus
 - The seven major state highways collectively carry an estimated 350,000 people daily in and out of the region (290,000 total daily traffic, not counting trucks, estimating average auto occupancy at 1.2 people); I-80 West and US50 East operate at capacity during recreational peak hours, and I-5 South, I-80 East, and Route 99 South operate near capacity at times, while I-5 and Routes 99/70 North operate at about 50% of capacity at peak use today
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- Interregional freight to, from, and through the region is estimated to be the equivalent of 75,000 truckloads daily, with 60% actually on trucks, 40% in railroad cars, and a small fraction by air and sea
 - Union Pacific Railroad claims its system operates close to capacity for freight, though the key bottlenecks are located in antiquated railyards and hundreds of miles of single-track main line in mountain states further east; the railroad has been investing in major system improvements and increasing cargo hauled year by year, and preserves local system capacity for freight on the expectation that it eventually will become fully used
 - The major interregional highways carry about 43,000 truck trips to, from, or through the region daily, with an estimated 7,000 of those (15%) going through without stopping to load or unload cargo
 - Truck and rail commerce flows very differently with regard to Sacramento: about 80% of interregional truck traffic picks up or delivers at least part of a load in the region, but only an estimated 10% of interregional rail freight is coming to or leaving from the region
- Traffic congestion within the region continues to increase, and now hampers interregional traffic during weekday peak hours; on the other hand, steady interregional traffic all day adds to traffic loads on the region's freeways and state highways
 - I-5, I-80, Route 99, and US50 all experience up to 15 miles of congested traffic inside the urban area during two hours weekday mornings and afternoons, yielding 15-30 minutes of trip delay; for Bay Area recreational travelers going to or from the Sierras this can increase travel time by as much as 15%, but long haul trucks going to or from the Midwest and East regard this delay as insignificant
 - Interregional traffic affects local commute congestion on Friday evenings, when pass-through recreational traffic tends to be concentrated in late afternoon
 - Local traffic far outweighs both interregional traffic and truck traffic at critical congestion areas in the heart of urban Sacramento, despite perception to the contrary: interregional traffic comprises about 16% and total trucks about 9% of daily traffic on I-5 through downtown Sacramento, and interregional traffic comprises about 12% and total trucks about 5% of daily traffic on I-80 through Roseville
 - Population growth to 3.2 million by 2032 adds 800,000 autos (40% more than today) to the region and its already congested freeways, with the severest impacts impact on interregional travel likely from commuters and recreational traffic overloading carpool lanes on Friday afternoons, and eventually from general congestion even at midday hampering through trucking
 - Blueprint development patterns offer promise to contain growth in vehicle miles traveled (VMT), which would preserve some capacity on the region's freeways for the expected growth in interregional auto and truck trips

- Snow closures on I-80 and US50 disrupt interregional traffic significantly, affecting both recreational travel and commerce; the time penalty from snow closure or rerouting is large enough to cause failure of timely truck deliveries
- Intercity passenger trains do not operate reliably mixed with freight trains today, given the railroad's operating priorities and track capacity.
 - Amtrak holds grandfathered passenger train trackage rights, but the railroads give priority to profit-making freight movement, and passenger operators must continuously monitor Union Pacific and BNSF to ensure that their dispatchers give appropriate priority to passenger operations.
 - Amtrak California's Capitols and San Joaquins average on-time performance of about 75-80%, due to increasing numbers of freight trains and to track construction work, which is gradually increasing train capacity and speed; Amtrak California regards anything less than 90% on-time performance as unacceptable.
 - Intercity passenger train service and expansion must compete with increasing demand for shipping freight by rail, which has been growing at more than 3% per year for the past decade; the railroads give investment priority to main line and yard capacity for their own freight operations, and consequently federal and state programs to expand passenger rail capacity have had a difficult time coordinating joint investments with the railroads.
- Access to interregional travel for those coming to or leaving the region is currently fragmented or confusing except for those using automobiles.
 - Sacramento Regional Transit does not serve Sacramento International Airport, although YoloBus does stop there hourly, leaving private autos, rental cars, and taxi as the main access options.
 - Sacramento's downtown Intermodal station connects intercity and commuter rail, but has weak local transit connections (though that will soon change with opening of a light rail extension in late 2006), no direct connection to Sacramento Airport or the Greyhound terminal except by taxi, no rental car services, and poor and confusing parking for those who drive there.
- The precarious state of interregional bus service limits options for low-income and rural travelers.
 - Sacramento remains one of Greyhound's largest western hubs, but with Trailways' demise the only other intercity operators are regional, serving nearby urban and rural commuter markets such as Vacaville, Stockton, Grass Valley, and Jackson
 - Greyhound in 2005 for economic reasons was forced into extensive service abandonment, particularly to rural communities; it also is considering dropping its intercity commuter runs from suburban depots (such as 'Quik-Link' from northeast Sacramento and Davis to San Francisco), and bus service no longer connects to Vallejo's Baylink Ferry to San Francisco.
- Interregional traffic introduces or magnifies certain safety concerns: increasing truck traffic in mixed flow with passenger vehicles, affecting congestion and sometimes leading to unsafe driving; substandard roads and interchanges, leading to hazardous turns, blocked traffic, roadside damage, and spilled loads; and fog near the urban edge, leading to multi-vehicle crashes and fatalities

Interregional Travel and Shipping Decision-making

- The majority of decisions that bring interregional travel and shipping are beyond regional influence or control, driven by population growth, geography, individual choices, logistics factors, and economic demand and profitability
- Cost and travel time are the key factors for people choosing how to make an interregional trip, although other factors come into consideration too; these factors clearly favor auto travel when more than one person is traveling (the cost of two tickets on rail or air exceed out-of-pocket auto cost until gasoline prices reach \$6/gallon or more), except at distances greater than about 400 miles when the time advantages of air travel become decisive
 - Cost: travelers compare out-of-pocket cost (excluding the costs of owning an auto, which people treat as fixed costs), and at distances up to about 600 miles (beyond which the cost of overnight stays and meals must be added in) and today's gasoline prices of \$3/gallon the cost of driving or traveling by rail or air are approximately equivalent
 - Travel time: travelers compare door-to-door travel time; when access and wait time are taken into account auto takes less time for most trips up to 250 miles, and air begins to have clear advantages at 400 miles or longer
 - Reliability: rail, bus, and air all provide about 80% schedule reliability, usually better earlier in the day and in lower travel seasons, while auto reliability depends on congestion delays and becomes less predictable when traveling in or through heavily congested urban areas
 - Flexibility: auto travel offers complete flexibility, whereas rail, bus, and air are hostage to service schedules, and last-minute ticket changes may not be possible or may cost more
 - Convenience and comfort: interregional travelers must trade the attention required for driving and the comfort of their auto against time usable for other tasks while riding and the intermittent inconveniences and discomforts of rail, bus, and air travel, and some people simply do not like to fly or drive long distances
 - Connectivity and accessibility: traveling without an auto typically requires access to a terminal and connections at one or both ends, which may or may not be convenient
 - Safety and security: auto travel is statistically more hazardous than any other mode, but many travelers do not perceive auto travel that way; security procedures have made air travel more of a hassle since 2001, and crime or public nuisance behavior make some transit travel less attractive, even for trip connections
 - People feel more in control when driving, except for those relatively rare places where other modes complement each other smoothly and conveniently for seamless movement of passengers
- Shippers choose freight routings based on cost, time in transit, delivery reliability, and type of cargo; these factors clearly favor truck for essentially all freight shipments within the state, and, beyond a 700-mile threshold, the longer the haul distance the more likely another mode may be competitive or preferable
 - Cost: trucking costs are highly competitive for all but the heaviest freight, and dispersal of industrial and warehouse activities means fewer sites are directly served by rail, so nearly all shipments end up on trucks for the "last mile" anyway

- Time in transit: warehousing-on-wheels has changed the value of goods-in-transit; rail service is slower and less reliable than truck at distances under 700 miles for all but the heaviest freight, offsetting the lower cost of rail shipment
- Delivery reliability: just-in-time manufacturing and retail processes have greatly increased the value of timely delivery, to avoid production line shutdowns and retail products out of stock
- Type of cargo: trucks carry practically everything for distances under 700 miles and nearly all products distributed to multiple sites, except that bulk, very heavy, and hazardous freight may go by rail, and petroleum products may go in pipelines
- Accessibility: shippers do consider intermodal connections, and areas with good connections - which means convenient freeway access or a rail main line - do attract more shipping and attract business more readily
- Connectivity: the more intermodal connections involved in a shipment, the more likely delivery reliability breaks down, because intermodal connections are often a weak link in the system
- Security: Shippers consider risks of pilferage and lost or misrouted shipments, and favor routings with efficient security processes

Land Use, Interregional Commuting, and Recreational Travel

- The Sacramento region expects to see a 40% increase in interregional auto trips by 2032, driven largely by external factors such as Bay Area and Central Valley population growth, and the region's transportation system must take this growth into account on top of transportation needs from growth within the region
- Regions that fail to provide a balance between affordable housing and jobs – as has happened in the Bay Area and Southern California – have given rise to extensive interregional commuting
 - Riverside developer Bob Wolf has described the search for affordable housing as “Drive ‘til you qualify,” which may mean to the next region for areas lacking low-cost housing such as the Bay Area
 - An estimated 20,000 workers commute daily to the East Bay from areas around Tracy, Stockton, Manteca, and Modesto, and a much smaller number commute from areas in this region such as Elk Grove, West Sacramento, Natomas, Woodland, and Winters, from which the East Bay is reasonably accessible
 - Although a notorious handful of commuters travel 90 miles or more each way to work daily, the typical interregional commute goes 40-60 miles from the far edge of one region into the near edge of the one next door, from the Central Valley to places such as Livermore, Antioch, Fairfield, and Vallejo
 - Most interregional commuters do so only temporarily, until they have the job experience to get a higher-paying job close to home or the means to buy a higher-cost house in the region where they work
 - Sacramento attracts small numbers of interregional commuters from nearby rural areas with weak job bases, such as Jackson, Grass Valley, Colusa, and Gridley
- Blueprint principles call for balancing jobs with affordable housing, both in communities within the region and for the region as a whole, which represents the most effective strategy to prevent the region becoming a magnet for interregional in-commuting

- Blueprint principles lead to the conclusion that adjacent regions should not build interregional carpool lanes, like those being added on I-580 over Altamont Pass, which serve to reduce existing commute congestion and encourage carpooling but also foster expansion of interregional commuting behavior
 - Regions face a dilemma between adding capacity to handle interregional travel demands and containing capacity to restrain interregional commuting when interregional traffic approaches capacity on a key interregional route, as is happening for recreational traffic on the 6-lane stretch of I-80 between Vacaville and Dixon and for commerce on parts of Route 99 in the Central Valley
 - The interregional commuting dilemma can be resolved if all regions involved succeed with jobs/housing balance policies, and only then expand capacity to what is needed to meet interregional travel demand
- The Sacramento region's recreational travel and tourism industry continues to grow, brings external spending into the region's economy, and depends on good interregional access
 - Sacramento and the surrounding region offers significant recreational and tourist destinations for people wanting to visit the State's Capitol, museums, concerts, festivals, and sports events, historic and nature sites, outdoor recreation areas, and other attractions, which represents a multi-billion dollar piece of the region's annual economy
 - Bay Area recreational traffic passes through Sacramento to various events and attractions in the foothills, Sierra, Lake Tahoe, and Nevada, with 12,000-20,000 vehicles passing through on a typical weekend

The Economy and Interregional Commerce

- The Sacramento region expects to see a 60% increase in interregional truck trips by 2032, driven largely by external factors such as increasing imports of consumer goods to match population growth and general growth in international and interstate trade, and the region's transportation system must factor in this increase on top of transportation needs from growth within the region
- Sacramento's economy benefited historically because of its central location and accessibility, in the middle of the Valley and the state, along a navigable river, where the transcontinental railroad and interstate highway cross the Sierras; those location advantages remain in place, so interregional travel and freight, driven by factors outside the region, will continue to come through the region
 - I-5 serves as the main north-south corridor on the West Coast, and I-80 is the only freeway across the mountains in the 1000-mile stretch between Bakersfield and Portland, Oregon
 - Only three railroad main lines cross the mountains between southern California and the Columbia River Valley in Oregon/Washington, and two of them come through this region
 - Sacramento International Airport and Mather Field offer top quality airport facilities on the West Coast without the land-side and air-side congestion challenges of the major urban airports in the Bay Area and Southern California
 - The potential for the Port of Sacramento & Yolo as a reliever for the Port of Oakland increases as cross-dock and land access congestion grows in Oakland and Southern California
- Sacramento's economy significantly depends on interregional connections for goods, both for import of consumer products and export agricultural and technology products, lumber and construction materials, and other specialty products

Options and Funding for Interregional Transportation Improvements

- This region is already under funded for basic road maintenance, transit operations, and regional improvements to keep up with population and economic growth, and has little expectation of being able to invest specifically to improve interregional connections
 - Improvements for freeway traffic flow through the center of the urban region would provide incidental benefits to interregional travel and commerce in any case, because all interregional highway routes go through or near downtown Sacramento and urban traffic congestion affects interregional travel more through the urban core than at the gateways (except possibly on I-80 West on peak recreation weekends)
 - The SACOG region gets about \$80 million per year from the State Transportation Improvement Program (STIP) for all six counties, inadequate to fund internal regional improvements to serve a growing population and commerce, with no cushion for interregional investment
 - Sacramento Transportation Authority is developing a regional traffic impact fee (RTIF) as part of the new Measure A sales tax program, under which large new developments will pay fees to mitigate their local and regional impacts, including freeway and interchange improvements, some of which may benefit interregional travel; El Dorado and Placer Counties and the San Joaquin region have similar RTIFs already in place
 - Toll lanes and HOT lanes typically are best suited as a system management tool, for peak commute traffic, and probably do not represent a real option for interregional traffic improvements in this region
 - Caltrans has looked at toll bypasses or truckways along the I-5 and I-80 corridors over the years, but the amount of interregional through and truck traffic today does not seem to point to that kind of financing, even with a public-private partnership
- The region must look to Caltrans to fund the major share of state highway improvements beyond the urban area for interregional travel and commerce, looking to the 25% of State Transportation Improvement Program (STIP) that Caltrans uses for interregional highway improvements
 - Caltrans by law can use no more than 40% of its share of the STIP in urban areas, where most state highway projects come at very high cost, so regions must assume the major share of urban state highway improvement costs; at current funding levels, the STIP provides Caltrans about \$160 million per year statewide for urban investments, which could build perhaps one or two projects statewide except that Caltrans funds only small shares of urban state highway projects to stretch its money
 - Caltrans thus focuses its funding on rural interregional state highway needs, many of which fall in small counties that can afford only minor funding contributions to state highway projects; at current funding levels, the STIP provides Caltrans about \$240 million per year for rural investments, and regions that can provide some share of project funding can move up in priority
- Caltrans and the region must work together to identify lower-cost operational and supplemental improvements to keep state freeways functioning through urban Sacramento, since state highways carry 50% of all vehicle-miles-traveled statewide and in this region, and nearly all interregional travel
 - Interregional traffic, especially trucking, wants to stay on state freeways, so the region and local agencies should look for ways to serve local traffic with parallel arterial routes, especially along I-5 and I-80, and regional connectors that can provide more direct routes for local traffic, to free up freeway capacity for interregional traffic
 - Placer Parkway probably represents the only local project that might offer promise of direct benefit to interregional traffic, depending on how it is built and where it connects

- Strategic operational improvements, such as auxiliary lanes, metering, and ramp improvements, especially where interchange traffic backs up onto the freeway, can help freeways function better at modest cost
- Carpool lanes and programs, freeway service patrol and other incident response actions, and real-time motorist advisory information all help keep both regional and interregional freeway traffic flowing better
- Congress has increased federal funding that can go to states for intercity passenger rail and (for the first time since the 1800s) to freight rail improvements
 - SAFETEA-LU provides \$350 million per year for rail track relocation, expansion, and improvement, starting in 2007
 - The Passenger Rail Investment and Improvement Act provides \$4.9 billion at 80% federal/20% state match rates for state intercity passenger rail investment through 2011, and authorizes \$1.3 billion of tax credit bonds for passenger rail capital projects
- Various constraints hinder improvement of interregional access and connections
 - High right-of-way costs, reluctance to define and reserve highway corridors for bypasses, and challenges of local expressway access control make it more difficult to keep main state highways and freeways operating acceptably
 - A culture that favors road expansion for a 20-year horizon has set back planning and investment for incremental projects, such as traffic control and system management
 - Federal aviation funds and aircraft fees cannot be used outside airport property for ground access improvements
 - Despite airport land use planning to restrict development in airport safety and noise zones, community complaints about aircraft noise impacts challenge the margin for air travel growth
 - The Port of Sacramento & Yolo does not generate enough revenue to pay for highway or rail access improvements, or to dredge the shipping channel to 35 feet to increase its competitive and operational position