

Vision

It's More Than Just Transportation

If transportation improvements are so problematic, why bother? Nearly everyone is tempted from time to time to check out of this struggle, but there are many reasons to stay the course instead. The economy and social order are at stake.

- **Social cohesion of our communities** — The people who work in schools and hospitals, police and fire departments, surely should be able to live in the communities they serve, rather than commuting from many miles away to find affordable housing. Forced long commutes diminish the quality of life for many individuals and families. Long commutes also limit the time available for people's involvement in the communities where they live and work. City employees also are more likely to develop valuable local ties if they live in the communities where they work.
- **Economic well-being** — Transportation should support economic development, enhance regional competitiveness and provide access to the educational and economic opportunities that allow individuals to reach their full potential. Instead, transportation problems are adding significant costs to the region's economy, making the region less attractive for investment and reinvestment, and making it difficult to take advantage of economic opportunity.
- **Environmental quality** — The transportation system should support the viability of neighborhoods, waterways and green spaces. Instead, the system dissects communities and degrades the air and marine environment. Major investments in passenger and freight rail systems from the Canadian border to Oregon to other modes will concentrate growth at city and town centers, move more freight by rail, relieve congestion on I-5 and improve air quality.

- **Revenue** — At a time when new technologies such as hydrogen fuel cells are being introduced, governments should not depend on traditional transportation funding from the gasoline tax, which is at risk and potentially faces serious decline. The federal and state transportation programs are based on traditional fossil fuels and these no longer are sufficient as a tax source.



- **Tax burden equity** — The present tax burden is unfair. System users, rather than the general public, should logically bear more of the burden for new roads and transit services. Tolls and tax increment financing need to play a more important role.

The site that became the University of Washington. Alaska-Pacific-Yukon Exhibition, 1909 (courtesy of MOHAI)

In 1889, an ambitious seven-mile tunnel was drilled by the Great Northern Railroad through the Cascade Mountains at Stevens Pass. In 1906, the Great Northern Railroad and the Northern Pacific Railroad built a one-mile tunnel under Seattle from King Street station to Broad Street to allow the passage of long freight trains without disruption of downtown commerce. After the Alaska Gold Rush, Seattle leaders sponsored the Alaska-Pacific-Yukon Exposition, to celebrate our international destiny. In the context of all this it didn't matter so much that the majestic Bogue Plan to redesign the downtown and construct a new civic center failed at the polls. That battle was lost but the progressives' vision won the war. Transportation and forward-looking planning had been joined productively.

Move ahead a half century and think of the National Interstate Highway System that was begun under President Eisenhower and put in place during the course of 50 years at all levels of government through many projects. Some parts of the plan didn't happen, but the ones that did composed

A Vision Based on History

Implementing a plan with long-term vision is possible. To plan the future, we can look to the past. Think of the progressive era a hundred years ago, when much of our physical infrastructure was built. That legacy includes the leveling of Denny Hill in Seattle to make the Denny Regrade (Belltown, etc.), the Chittenden Locks and the ship canal, the City Light dams, the Olmstead Park and boulevard network, the Port of Seattle's expansion into Elliott Bay, development of the Port of Tacoma, the Inter-Urban trolley system, and the re-siting of the University of Washington. These projects were mostly permanent, too. Only the Inter-Urban trolley is gone!

a system. Whether or not you like the results, the Interstate System represented a big, bold and coordinated long-range vision.

At mid-century too, private sector leaders in the Seattle area launched the Century 21 World's Fair and then adopted Metro and Forward Thrust to clean up Lake Washington and build parks and ball fields. The region also opted for continuity of its identity and historical preservation when it rescued Pike Place Market from destructive "urban renewal" and saved the Arboretum from the planned R.H. Thomson Expressway. Indeed, these latter victories corrected flaws in the urban development theories of the previous two generations. Their message was, while you develop, think more about what you are trying to preserve.

Successful Measures . . .

Progress is very possible in our own time. This is a good point, therefore, to recall that the region has had some significant transportation successes in the more recent past, too. Consider:

- Sound Transit and countywide transit agencies have substantially expanded comfortable, regional express bus service. The Seattle/Bellevue/Everett/Tacoma area ranks seventh in the nation for percentage of commuters using transit.
- Primarily by moving to clean diesel instead of natural gas, Metro Transit was able to invest the savings into 400,000 hours of new service from 1996-1999, bringing its total annual service hours to 3.1 million.
- The region has one of the largest vanpool programs in the country with 11,700 riders a day.
- The U-Pass sponsored by the University of Washington, and bus incentives sponsored by the Seattle King County Economic Development Council (EDC), have raised

transit ridership and reduced parking congestion.

- The new Charles A. Booth Bridge in Auburn (see next page) is the most recent accomplishment of the highly acclaimed FAST Corridor project, a series of highway/rail overpasses and truck lanes around our ports. This project will increase community safety while allowing more efficient freight movement in the Kent/Auburn Valley south of Seattle.



Overlake Transit Center
(Photo courtesy of METRO and ST Express)

- The new Overlake Transit Center provides the Bellevue-Redmond area a multi-purpose mix of housing and business with transit.
- Flexcar, a private concern, operates a fleet of more than 70 vehicles in a dozen neighborhoods in and around Seattle, Bellevue, Redmond and Kirkland. It gives people the option of having a car without owning one or having to drive their own into work everyday. Flexcar is a serious, if modest, model for relieving congestion in crowded urban areas.
- The state "commute trip reduction" law has resulted in lowered vehicle travel for such companies as Weyerhaeuser and Navigant International Northwest that partner with



Charles A. Booth Bridge in Auburn, part of FAST Corridor rail and highway project (courtesy of Harris & Associates and City of Auburn)

the state to expand carpools and “guarantee” a ride home for late workers.

- The state is steadily completing one of the most extensive HOV (high occupancy vehicle) lane systems in the country, even as the Transportation Commission, Legislature and initiative advocates debate opening HOV lanes to SOV (single occupancy vehicle) drivers in off-peak periods.
- The Washington State Department of Transportation (state DOT) also has managed to reach greater efficiency on freeways through techniques to clear traffic in congested areas and to respond faster to emergencies.
- The City of Seattle is retrofitting neighborhood intersections with “traffic calming” roundabouts and is clearing traffic accidents more effectively along busy arterial roads.

- Bellevue, Everett, Kirkland, Redmond and Renton are mixing transit, retail, housing and highway construction in ways that improve the human scale of the town centers.

- The City of Tacoma is becoming not only the most technologically wired city in the region but also the most multi-modal, with the convergence of light rail, commuter rail, Amtrak, express and local bus service.

- Each day, four Amtrak Cascades trains with attractive new European-

style train sets connect Seattle to Portland, with one daily trip also to Vancouver, B.C. Ridership is up sixfold since 1993, despite uncertainties about the future of the national Amtrak system. The *Cascades* service, a partnership between Talgo America, Washington and Oregon departments of transportation and the Burlington Northern Santa Fe and Union Pacific railroads, has some of the highest customer satisfaction ratings among all of Amtrak’s routes.

- The Puget Sound Regional Council has merged a comprehensive four-county land use plan with a transportation investment strategy. The result, Vision 2030, has been recognized as a national model.

... And Half Measures

Still, it is hard to escape the overall feeling that this region is living inside a veritable transporta-



Once futuristic monorail —
Life Magazine Cover, May, 1962

joke, however, to residents of the Sammamish Plateau, Kent Highlands, Puyallup, Marysville and Monroe, where growth has overwhelmed transportation infrastructure as well as other public services. An investment in major corridors and county arterials is long overdue.

Until the new monorail is built, the city of Seattle has only a souvenir World's Fair monorail gliding above the few blocks between Westlake Center and Seattle Center. There is a delightful old-fashioned trolley running along the Waterfront, but not to King Street station or the Seattle Center where it would do the most good.

The expanded Bus Rapid Transit System still lacks completion of the dedicated lanes and ramps that would render it a true success.

Passage of Initiative 695 gutted the ferry budget, raised fares and beached new passenger-only boats. Proposals by Kitsap Transit to operate private passenger-only ferries across Puget Sound face potential legal and state worker obstacles. Reductions in transit funding also were slowly recovered only as people in the region voted to raise their sales tax to make up for losses due to passage of I-695. In 2002 voters passed I-776 and the monorail. Thus, the region experiences a yo-yo effect in initiative votes for transportation funding: One year taxes are raised, another year taxes are cut.

tion museum of half-measures.

The 1992 Growth Management Act promised “concurrency”; that is, the government would ensure that improvements needed to *accommodate* growth would keep *pace* with growth. This promise has become a bad

There is a regional transit pass (the Puget Pass) for the five regional transit services and the ferry system, but it lacks the inter-modal “smart card” capabilities of other systems around the world.

Only three Sounder commuter trains per day run from Pierce County to Seattle, not enough to offer choices to build ridership and far fewer than the nine projected for this year. The Sounder train between Seattle and Everett originally was scheduled to operate in 2000 and is now scheduled for 2003, but costs have skyrocketed. And there is

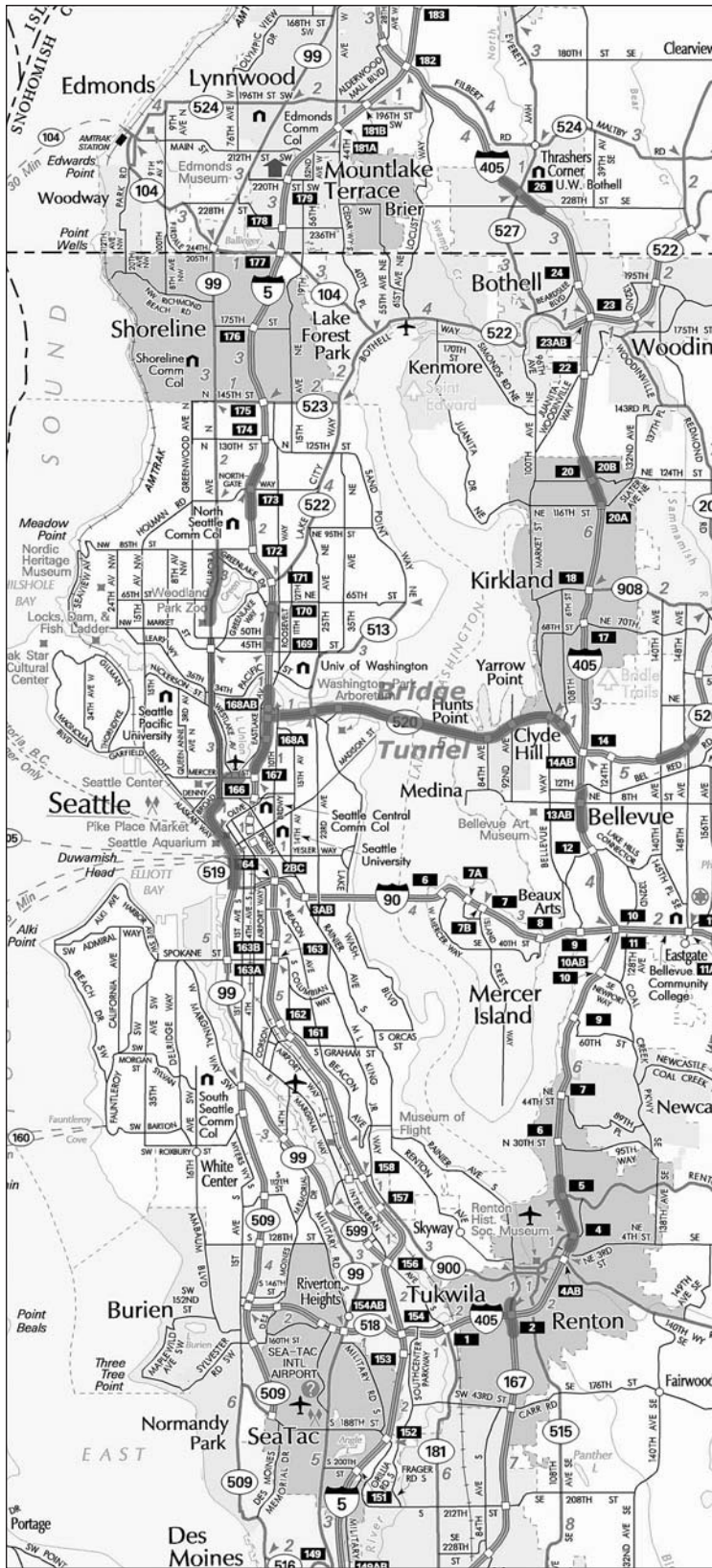


Seattle Waterfront Streetcar (Courtesy of METRO Transit)

still no agreement with Burlington Northern Santa Fe railroad to operate on BNSF tracks. The trains terminate across the street from a so-called “inter-modal” station at a run-down King Street Station that does not even allow Greyhound buses near its doors. The only train service on the Eastside of Lake Washington is a nostalgic dinner train, perhaps aptly named “The Spirit of Washington.”

If all goes well, in another seven years and after expenditure of between two and three billion dollars, Sound Transit will have one light rail rapid transit line in operation.

And it is clear that a natural disaster, large-scale incident or terrorist act would expose the total lack of redundancy in the transportation network. This region is vulnerable to large-scale breakdown sooner or later.



Proposed tunneling and lidding in Central Puget Sound (Discovery Institute)

So, neither despair nor complacency is warranted now. Patient, reflective determination must be the path of statesmanship on the transportation issue.

A Practical Vision for Reclamation and Reuse: Going Vertical

Today, our vision for thinking boldly, regionally, and long-term in the Central Puget Sound area grows from the realization that Seattle, Bellevue, Tacoma, Everett and many other cities in America – in fact, metropolitan areas around the world – have lost vast amounts of prime real estate to freeway transportation corridors. Until recently, this space has been devoted solely for one purpose that excludes others: to provide space for combustion engine vehicles. But land used for roads alone can come at a high cost in potential community and economic development and the tax revenues they generate. Transportation projects can add many kinds of value to a community, but poorly planned projects can also minimize value. One of the major advantages of the monorail, symbolized by its campaign slogan, “Rise Above It All,” is that it uses space above existing public roadways.

Perhaps the biggest loss resulting from freeway construction in America was removal of tax-paying real estate in the urban center and the loss of the physical cohesion of neighborhoods that conduces to social cohesion. A street connects a community; a six-lane freeway often divides it. Fifty years ago, existing land use was seen mainly as an obstacle to growth. Costs were relatively low. A major difficulty in building new facilities today is the surge in the cost of acquiring real estate. Land is now very dear.

Thus, two ways to make transportation dollars stretch further are 1) to use

As much as possible, land for transportation in dense urban areas these days should be put to several uses, not just one.

existing rights-of-way wherever possible, since we already own them; and 2) to use tunnels or lidded cut-and-cover trenches to restore saleable, leaseable, taxable property above them. Instead of escalating real estate prices that eat away at transportation project budgets, rising real estate value can be made an ally. As much as possible, land for transportation in dense urban areas these days should be put to several uses, not just one.

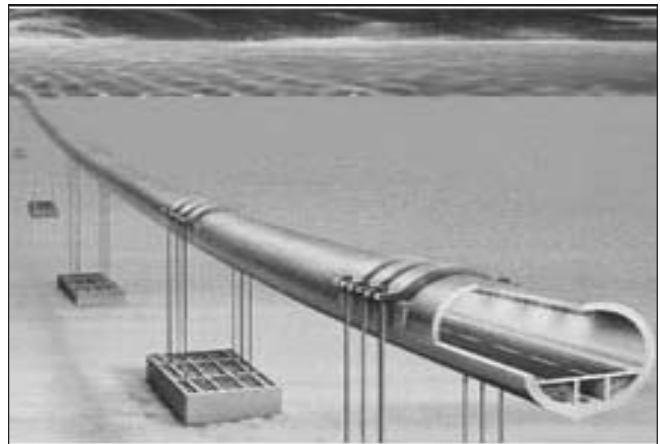
We suggest that future federal and state policy should support reclamation of large sections of land in our cities to reconnect urban centers, promote land for housing and neighborhood business, gain space for parks, enhance historic preservation efforts, and increase capacity for autos, trucks, and transit by burrowing down to enhance transportation structures in some key areas. It's time for the vertical integration of our transportation systems.

We especially recommend this policy to Sen. Patty Murray, ranking minority member of the U.S. Senate Transportation Appropriations Subcommittee, and Representative Don Young of Alaska, chairman of the House Transportation and Infrastructure Committee. Their committees soon will begin the process of reauthorizing the six-year federal transportation program known as the Transportation Equity Act for the 21st Century (TEA-21).

Our concept of metropolitan land reclamation, or re-using the air space over big city freeway corridors for multiple purposes, is a natural national issue as well as a regional one. It constitutes a potential innovation that could warrant major federal funding as a pilot program for what

many other highly urban areas (from Philadelphia to Atlanta to Portland) may well desire for their own futures. Adopting the concept of mixed-use transportation corridors is thus a potential funding tool as well as a sound development policy: It offers Central Puget Sound the prospect of allies in other states. We see it as a crucial step forward in the transportation field generally. But while it is innovative, it is not unique or unprecedented.

If the Danes and Swedes can build a tunnel and bridge across the Oresund Sound connecting the two countries, and if the British and French can tunnel under the English Channel, we can tunnel across Lake Washington and along Seattle's central waterfront. The state DOT and the Translake Committee propose building a new six-lane floating bridge that is projected to last at most 75 years — if it doesn't collapse in a storm first. Why can't



Drawing, Submerged Floating Tunnel (courtesy of SubTerra, Inc.)

this state and region spend more now and spread the payment over several decades to get a large tunnel, or a Scandinavian-style bridge/tunnel combination, that will last a century or more? Why can't we use that tunnel to reclaim freeway land and priceless scenery lost on both ends?

Tunneling technology is progressing quickly in the world, particularly floating tunnels that do not require expensive boring into rock and deep angled approaches. This region should be in the forefront, not lagging behind, lest a generation from now we risk regretting an uninspired decision. Tunneling and lidding may be very costly and the

path to getting there may be long and difficult, but in addition to reducing noise and reconnecting neighborhoods, tunneling and lidding allow the government to create, rather than consume, valuable property.

Likewise, monorail technology is particularly suited for urban freeways because its smaller support columns usually can fit within public rights of way. They can go in tunnels or they can be incorporated as elevated structures over the reversible lanes of a freeway, such as I-5, as proposed by the Regional Freeway Monorail supporters.

There is no doubt that recreation and green space are appropriate uses for some of the land reclaimed over roadways. However, this land could be seen as producing value in other ways

Metropolitan neighborhoods are asking whether transportation investments create improvements in overall quality of life.

as well. Affordable housing for the elderly and the disabled comes to mind, as does “workforce housing” for the aforementioned public servants — such as teachers, firefighters and police — who work in local communities.

Leasing the lid space to retail or commercial developers could produce a revenue stream (along with tolls dedicated to community redevelopment) to help service the debt that will be necessary to make any substantial changes in the corridor. Placing neighborhood retail stores, schools, libraries and other cultural amenities on the lids could serve as an effective land management strategy. The policy would be to locate closer to resi-

dents amenities that now require trips out of the neighborhood.

Urban Environments: Reconnecting Neighborhoods

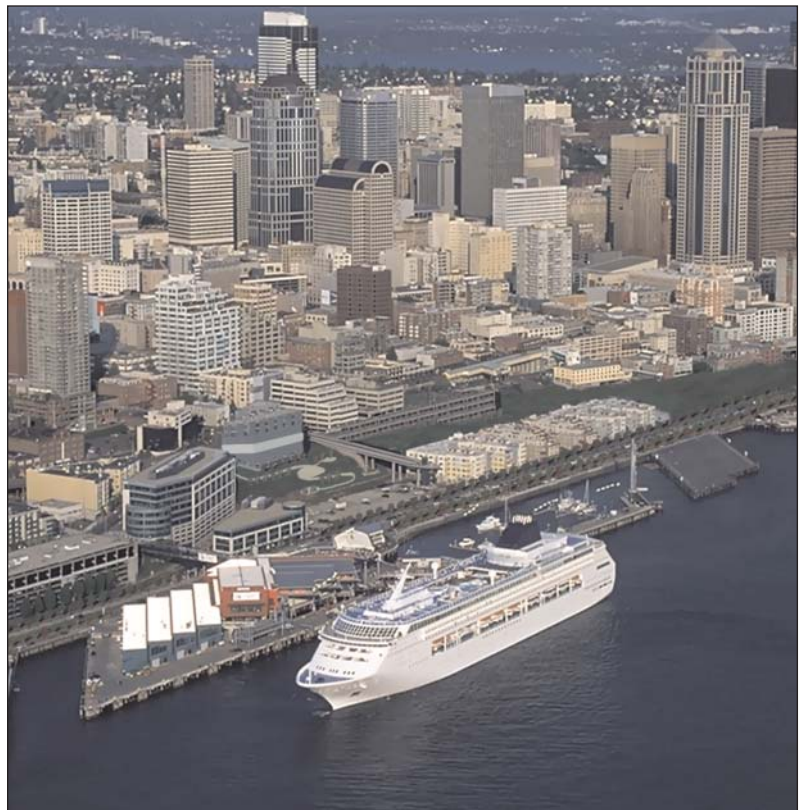
When the Montlake and Medina communities declared their opposition to an expanded 520 bridge and corridor (from Seattle’s I-5 east to Redmond) without the type of extensive lidding that the Mount Baker and Mercer Island communities received at the time I-90 was expanded, the state response was, “We can’t afford it.” I-90 was built with 80 percent federal funds, while 520 is a state highway not eligible for federal interstate highway funding. It was easier to commit to mitigate a community’s legitimate concerns when the costs were being spread across the federal tax base instead of only that of Washington state and Central Puget Sound.

Unless the state’s congressional delegation can influence the federal government to help, mitigation of impacts of regional transportation facilities on adjacent neighborhoods will have to come from state or regional sources. But that does not mean that the state cannot afford it. It does mean that state and regional leaders need a more complete understanding of the value created for society through investments in transportation. The question, in the long run, is not only “What do these facilities cost?” The question is also “How can these investments in mobility and access protect our existing investments and create the greatest returns for future economic security, environmental health and strong communities?”

From Seattle’s Rainier Valley to suburban Monroe, from Tacoma to the shores of Edmonds, metropolitan neighborhoods are asking whether transportation investments create improvements in overall quality of life. Does the project increase mobility and community safety? Does it affect property values and housing affordability? Do the investments make it easier to connect people



Seattle Waterfront with the Viaduct today



Seattle Waterfront WITHOUT the Viaduct — new green and buildable space (rendering by Discovery Institute and BLJ Designs)

Case Study One

A Tale of Two Projects – Boston’s Big Dig and the Alameda Corridor

Two of the biggest public works projects in North America have either been completed or are in the final stages. Together they offer a laboratory of lessons for what to do and not do as the Puget Sound region considers its “mega-projects.”

On the eastern end of Interstate 90, about 3,000 miles from Elliott Bay, is the most ambitious and controversial project in the U.S., the Boston Central Artery Tunnel Project (“Big Dig”). At the center of the debate are official cost estimates that went from \$2.6 billion in 1983 to \$14.6 billion today.

At nearly the southern end of the Interstate 5 corridor in Long Beach is the West Coast version of the Big Dig – the Alameda Corridor. Originally budgeted at \$2.4 billion in the late 1990s, it opened on time and within budget last April. There is a lot to learn from both projects.

The initial purpose of the Big Dig project may sound familiar to Seattle: replace an antiquated elevated freeway through the heart of the city with an underground tunnel located essentially underneath the existing right-of-way. After two decades of debate and modifications, the project emerged to include the addition of a third tunnel across Boston’s Inner Harbor to Logan International Airport.

Bostonians hated the elevated Central Artery since it was built in 1959, before the days of environmental-impact statements and litigious special interests. Construction crews had blasted a path through downtown, displacing 20,000 people and demolishing 1,000 buildings in the process.



Boston’s Big Dig Project (Courtesy of Central Artery/Tunnel Project)

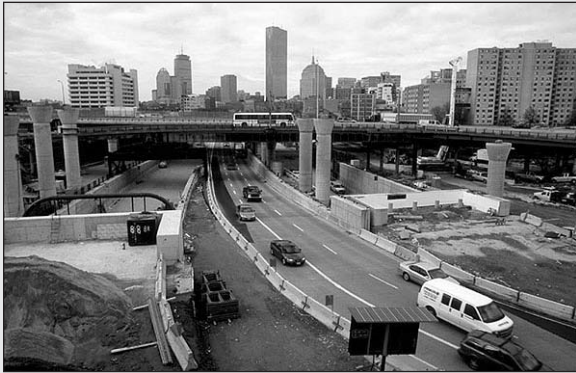
From the beginning, therefore, it was decided that the new project should disrupt the city as little as possible. As noted in a recent *Seattle Times* story on the Big Dig, this was an expensive decision. But it was an unavoidable one, contends Frederick Salvucci, former Secretary of Transportation for Massachusetts and a guiding force behind the project.

Doug MacDonald, Washington State’s Secretary of Transportation, says his agency has gone to great lengths to avoid the types of mistakes made on the Big Dig. He argues that the Big Dig is very different from projects Washington is contemplating. In particular, he notes that most of the money that pays for the Big Dig comes from the federal government. In Washington, most of the money for megaprojects is expected to come from state and local taxes. Experts say that’s likely to lead to intense public scrutiny of everything the DOT does. (Of course, lack of federal funding also makes a big project less feasible in the first place.)

MacDonald also notes that his agency has adjusted its cost estimates for inflation, carefully examined potential risks that could drive up costs and made conservative allowances. Most commentators in the case of the Big Dig cited several reasons for the cost increases, including

not adjusting estimates for inflation until late in the project and not anticipating the expense of building a complex project in the middle of the city while maintaining traffic flow.

But the Big Dig's major cost inflator came from the constant pressure to do more in the name of mitigation, such as adding car-pool lanes, sound-proofing buildings near the construction zone, and constructing temporary highway ramps. Approximately one-third of total project costs, indeed, can be attributed to various change orders.



Close-up of Big Dig in development
(courtesy of Boston's Central Artery/Tunnel Project)

And one major disappointment for rail advocates emerged from the Big Dig, the failure to provide a rail connection between Boston's North and South Amtrak/commuter rail terminals.

Positive lessons learned from the Big Dig include advanced construction techniques; notable among them, the use of slurry wall construction. This involves digging a small trench and filling it with a thin watery mixture of cement and sand so that the wall does not require external stays. The process eliminates the need for taking property adjacent to the right-of-way.

In the end, the Big Dig will turn out to be a major benefit to the greater Boston area by reconnecting the city with its historic waterfront, adding a huge park, building new direct connections to Logan Airport and building a dramatic bridge across the Charles River. Unfortunately, the Big Dig also casts a shadow over other mega-projects contemplated elsewhere — such as in Seattle.

The Alameda Corridor in California faced many of the same challenges as the Big Dig, but with different results. The project was designed to improve railroad connections between the ports of Los Angeles and Long Beach and the transcontinental rail hub 20 miles to the east. The corridor is a trench 10 miles long, 50 feet wide, and 30 feet deep that eliminates 200 at-grade crossings in the middle of neighborhoods and business districts.

The Corridor required cooperation and funding from dozens of federal, state, and local government entities and two competitive railroads. Federal funds were used to leverage innovative finance mechanisms, including fees for the conveyance of containers from the shipyard to rail heads. The project was halted on only one occasion when polluted water seeped into the ten mile tunnel. The director of the joint-powers Alameda Corridor Transportation Authority, James Hankla, credits several factors for the success of the project:

- Funding the project mostly through bonds that needed to be paid back by rail user fees, the agency kept to a strict timetable to achieve revenue service.
- Working with the neighborhoods to ensure that they benefited from employment opportunities and enhanced neighborhood amenities, including sound proofing the corridor and enhancing transit links.
- Adding transportation expertise to fiscal oversight and construction engineering departments.
- Hiring the best personnel to handle specialized areas in environmental and engineering areas.

Because of the success of the Alameda Corridor project, the Authority has been asked to manage other major transportation projects in that region.

with employment and services? Are they consistent with our desire to protect natural areas and open spaces? How do they relate to air and water quality? Do they support neighborhood businesses that are within walking range?

When Interstates 5, 405 and 90 were carved through our region in the 1950s and 60s, neighborhoods were divided in the name of mobility for cars, trucks and buses. Today, Capitol Hill and Eastlake are walled off from each other and the “S” curves slice up Renton neighborhoods. The I-90 project, with its long landscaped lids, parallel bike trails and Mountain to Sound Greenway designation, does a better job in integrating a superhighway with its adjacent environment.

When a 60-foot tall viaduct to speed traffic through downtown Seattle was built the central business district was separated from Puget Sound. The waterfront then was viewed merely as the place where ships docked. Those who envisioned a future in which the waterfront could become a vibrant front door to the world and an economic advantage were ignored. The Alaskan Way Viaduct did improve north-south travel efficiency to the benefit of many. But many more would now benefit from investments in north-south mobility and reconnecting the city with the Sound.

When the region’s highway and transit corridors are expanded, the design of the past should be corrected with such features as extended lids and tunnels. As old scars are healed, communities should be protected from increased noise, loss of access, and pollution during and after the construction process and beyond. That is one way that consensus, and even enthusiasm, can develop.

“People will be much more accepting of growth,” says former King County Councilwoman Maggi Fimia, “if there is a better balance between neighborhoods and the region and if people can see real improvements for the existing population.”

Marrying Transportation and Technology

“If you put human beings at the center and give them power through personal communications devices, the pattern in which people would travel an hour to an office to sit at the end of a six foot cord and talk to other people does not make a lot of sense. What destroys a city is commuting at a particular fixed hour on all the roads and infrastructure.”

Craig McCaw, International Seattle Conference, 1993



A wireless world with ample personal technology that could seriously reduce traffic congestion, as originally conceived by visionaries like Craig McCaw, is only slowly becoming a reality. A large share of the population has cell phones, but most people like to take them to work. Only a small share of the workforce

successfully telecommutes from places like Friday Harbor or Ellensburg. Some businesses located outside of urban centers have set up “telework” centers where workers are clustered closer to their homes in order to reduce the family-straining grind of long commutes, but this trend retains relatively limited influence. If there are ways to encourage the trend further through public policy, we have been unable to design it so far.

But technology can still help meet transportation needs today. As Discovery Institute Senior Transportation Fellow John Niles pointed out in a Discovery research paper, and Washington State Department of Transportation Secretary Doug MacDonald has noted at numerous public conferences, technology’s greatest contribution to transportation to date has been reducing congestion through operational efficiencies.

Technology-based efficiency can move more vehicles and people on existing infrastruc-



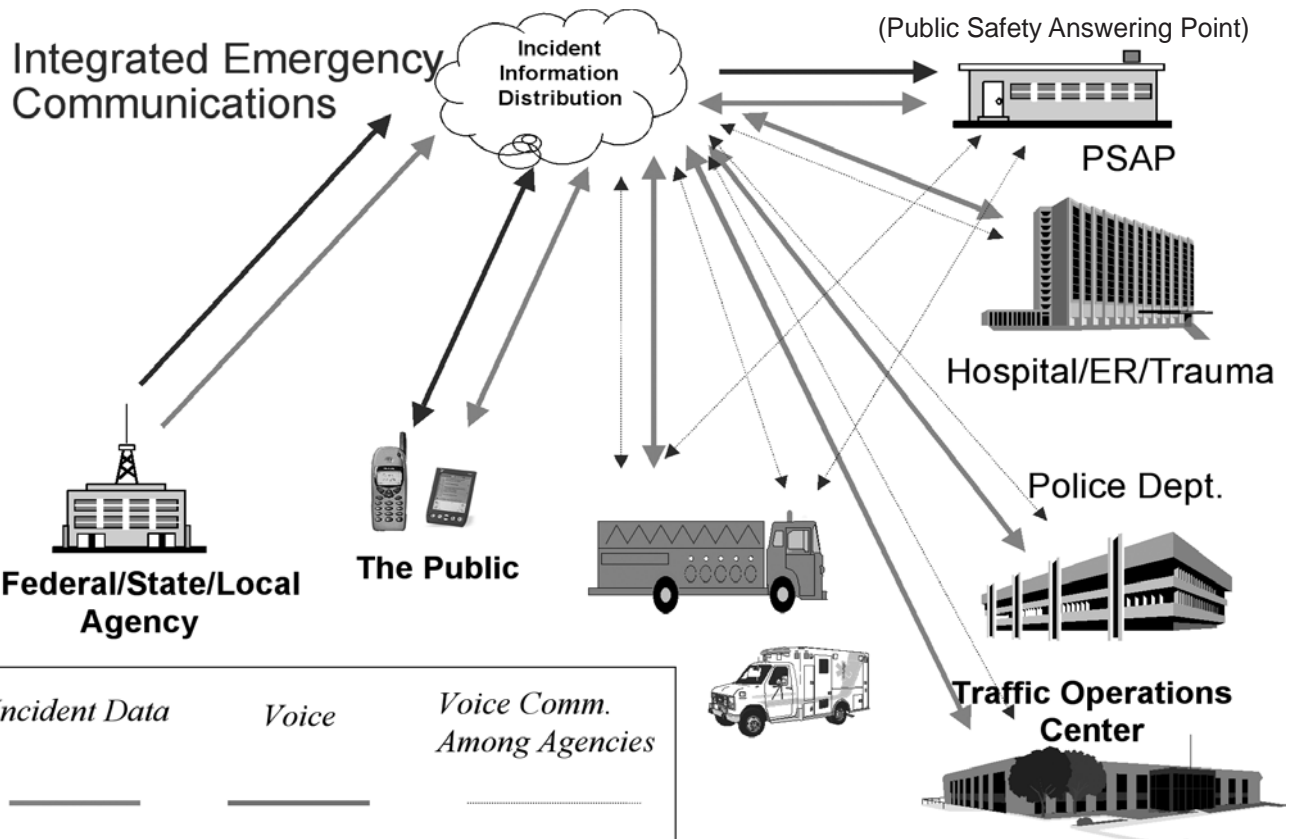
Transponder receiver on car windshield (courtesy of TransNow)

ture, thus compensating for delays in constructing new highway lanes and transit lines. For instance, cities are working with counties in this region to synchronize stoplights to create smoother traffic flows on arterials. The state DOT, a pioneer in on-ramp metering to smooth freeway vehicle flows and reduce accidents, is expanding use of the Internet and electronic road signs to provide truck drivers and commuters with information on levels of

congestion and route options. Of equal significance, the DOT is working with the State Patrol and the City of Seattle to use technology to coordinate more rapid clearance of highway blockages from accidents and breakdowns.

The alternative to driving — taking the bus — can be made to work better. Transit agencies have deployed systems that track the location of buses and advise riders of actual arrival times via the Internet, including signaling Web-enabled cell phones. A Web site from King County Metro lets travelers look up the route number and exact schedule of the best buses and required transfers for moving between any two addresses in the county. This kind of information, when widely used, holds the promise of making buses as easy to use as light rail or mono-rail transit.

Transponder cards in cars and trucks that provide automatic wireless data communications are now a common technology for collecting tolls



Emergency Safety Project diagram (courtesy of ComCare Alliance)

electronically. Similar to a combination of debit card and TV remote control, these cards can be used to eliminate stops at a toll booth and thus make toll roads faster and more acceptable to drivers. Tolls collected by this technology can be adjusted easily by time of day and in coordination with the level of congestion. That supports a pricing scheme that provides incentives to travel during less congested periods. In the commercial sector, transponder cards also can facilitate faster truck weighing and customs clearance along Interstate 5.

Automated data communications increasingly are seen as worthy tools also for dispatching and coordinating emergency service response, as well as for tracking hazardous material shipments and shipping containers that move through the ports and across the boundary with Canada. These capabilities are potentially crucial now in addressing homeland security.

The September 11 terrorist attacks revealed problems in voice communications among various agencies in New York City. To deal with such

tangles nationwide, a “Digital Emergency Services Initiative” has been created to smooth automated data communications (see illustration.) The project was launched by the Center to Bridge the Digital Divide at Washington State University, in association with the nationwide ComCARE Alliance. The E-Safety Project, as it is also called, is working to improve cooperation among 9-1-1 dispatch centers, wireless phones, computerized communications built into vehicles, traffic management centers, and such emergency resources as police, fire, and medical services. The goal is to bridge the “stovepipes” of different communications systems, devices and organizations in times of emergency, whether there is a major national security threat or simply a traffic tie-up when somebody’s car runs out of gas on a freeway. Along with more attention to coordination of voice radio frequencies between agencies, communication problems can be greatly relieved by rapid, automatic flows of emergency location and status information in digital format, as further envisioned by the E-Safety Project.