Name:	Regional Transit Plan/Regional Rail Project
Location:	Three-County Triangle Region (Wake, Durham, and Orange Counties), North Carolina

History/Justification:

In 1992, the Triangle Transit Authority (TTA) began to study long-range regional public transportation for the three-county Triangle region, which included the Triangle Fixed Guideway Study (TFGS). The goal of the TFGS was to develop consensus within the region regarding the desirability, feasibility, and location of a fixed guideway transit system. The TFGS evaluated four alternatives and was completed and adopted by the TTA Board of Trustees in 1995. It has also received support from all major units of local government, chambers of commerce, universities, and major employers in the Triangle.

The Regional Rail Transit System is needed:

- To provide high-quality, time-competitive and reliable regional transit service,
- To improve capacity, connectivity and mobility options to accommodate future growth in the region,
- To support efforts in the Triangle region to encourage more compact forms of development, and
- To increase the quantity and usage of transit service in the region's most congested travel corridors.

Description:

- Three phase rail project that will link 3 counties – Wake, Durham, and Orange
- Phase 1:
  - Connects Durham, Research Triangle Park, Cary, Raleigh, and North Raleigh using diesel multiple unit (DMU) rail vehicles to serve the 16 anticipated stations.
  - Service will be provided on new tracks that are added to existing railroad corridors.
  - Includes the addition of express bus service to existing routes and new service in the region's smaller communities.
  - Will provide feeder bus systems to future rail stations.
  - Existing local bus services will be coordinated to serve the rail stations.
- Phase 2:
  - Connects Phase 1 to the RDU Airport and Chapel Hill, which will be more complex because there are not any existing rail corridors that will directly link these areas.
- Phase 3:
  - Future rail extensions could be made where rail corridor exists depending on ridership, available funding, and negotiated operating agreements with railroads.

Cost:	Phase 1 capital costs are estimated to be $832 million. The system-wide operating and maintenance cost per passenger is $2.80 for the No Build/TSM Alternative, and $2.62 per passenger for the Regional Rail Alternative.
Expected Results:	This service is anticipated to carry about 28,000 daily riders by 2025. Phase 1 is estimated to reduce the overall vehicle miles traveled (VMT) in the Triangle by about one percent. This project is expected to slightly reduce the amount of traffic congestion and provide a viable alternative to using highways in the region's most congested corridors.
Status:	The project is in the final design stages. Phase 1 construction is expected to begin in 2004 and be operational by 2007.

Name:	Central Artery/Tunnel Project
Location:	Boston, Massachusetts

History/Justification: The original elevated Central Artery was completed on July 1, 1959 and carried about 75,000 vehicles per day (vpd). It extends from the Mystic River Bridge in Charlestown over the Charles River through downtown Boston to Braintree. It cut through downtown's North End, Financial District, Waterfront, and Chinatown neighborhoods, which resulted in the demolition of more than 1,000 structures and more than 20,000 people lost their homes. It was supposed to work with the Inner Belt highway, which was planned to run around downtown Boston to the west, but was never built.

It carried 190,000 vpd with an accident rate 4 times the national average for an urban interstate. It experienced bumper-to-bumper traffic jams for 6 to 8 hours a day, with projections of 15 to 16 hour traffic jams by 2010 if nothing was done. The annual cost to motorists from this congestion, in terms of and elevated accident rate, wasted fuel from idling in stalled traffic, and late delivery charges, was estimated to be $500 million. The Central Artery/Tunnel Project was the only solution to increasing the capacity of the existing highway system, because adding a lane would mean taking a lane during construction and would be disastrous to the already terrible traffic situation in the city.

Description:

The Central Artery/Tunnel Project spans about 7.8 miles of highway, 161 lane miles with about half in tunnels. It is comprised of the following major highway improvements:

- Replacement of the existing 6-lane elevated highway with an 8 to 10-lane underground expressway directly beneath the existing highway.
- Demolition of the existing elevated highway, which will be replaced by open space and modest development.
- Extension of the Massachusetts Turnpike (I-90) from its existing termini south of downtown Boston through a tunnel (Ted Williams Tunnel) between South Boston and Boston Harbor to Logan Airport.
- Construction of two new Charles River Bridge crossing
  - Replacement of the 6-lane double-deck bridge that connects downtown to Charlestown with the new Leonard P. Zakim Bunker Hill Bridge (10-lane bridge), which will extend from the underground Central Artery near the Fleet Center at Causeway Street, crossing the Charles River to make connections with both I-93 and Route 1.
  - Construction of a new 4-lane bridge that connects the Leverett Circle area on the northwestern edge of downtown Boston with points north of the Charles River.

Cost:	As of November 30, 2003, the estimated project cost is $14.625 billion.
Expected Results:	• Downtown Central Artery (I-93) will be carrying 245,000 or more vpd, with normal peak periods of about 2 hours in the morning and evening. • Ted Williams Tunnel will be carrying more than 90,000 vpd, reducing use of Sumner and Callahan tunnels to about 77,000 vpd. • Carbon monoxide levels will be reduced by an estimated 12 percent because traffic will be moving rather than standing still in a gridlocked highway. • Cross streets between downtown and the North End and waterfront that were severed or disrupted by the elevated highway since the 1950s will be reconnected. • The elevated highway will be demolished and replaced by 27 acres of new open space along the artery corridor. Three quarters of the 27 acres will remain open, with the rest dedicated to modest development.
Status:	As of November 30, 2003, the overall project is 91.6 percent complete. The project is anticipated to be completed in 2006.

Name:	London Congestion Pricing
Location:	London, England

History/Justification:

The average driver's travel speeds in central London in 2002 (9 mph) were less than in 1903 (12 mph). Studies indicated that London's drivers spent about half their time in queues, incurring 2.3 minutes of delay for every kilometer (0.6 miles) they traveled. London First, a business membership organization supported by over 300 of London's major companies, estimated the cost of congestion to business in London at about £2 billion ($3.2 billion) a year. Therefore, congestion pricing was implemented in central London in February 2003 to help alleviate the crippling roadway congestion.

Congestion pricing was also deemed appropriate because of the relatively good travel alternatives used by most travelers, which include walking, taxi, bus, and subway services. Just over a million people enter central London during a typical weekday morning peak (7-10 AM). Approximately 12 percent of peak-period trips were by private automobile. Congestion pricing has been recommended for central London by transportation planners for decades.

Description:

Motorists driving in central London on weekdays between 7:00 AM and 6:30 PM are required to pay £5 ($9). However, motorcycles, licensed taxis, vehicles used by disabled people, some alternative fuel vehicles, buses and emergency vehicles are exempt from paying the congestion fee. Area residents also receive a 90 percent discount on their vehicles. The charging area is indicated by roadside signs and symbols painted on the roadway.

Payments can be made at selected retail stores, payment machines located in the area, by internet and cellular telephone messaging, anytime during that day. Weekly, monthly, and annual passes can also be purchased. A network of video cameras records the license plate numbers of vehicles and matches it with the paid list. The owners of vehicles that have not paid as required are sent a £80 ($150) fine, which will be reduced if paid within two weeks or increased if not paid in a month.

The program's revenues will be used to improve public transit services, including more buses and major renovations to the subway ("Tube") system, which are significantly in need of redevelopment.

Cost:

The development and implementation costs were estimated to be £500 million ($922 million) with £800 million ($1.5 billion) in total revenues over the first 5 years of operation. The operating cost of the program is estimated to be £100 million ($184 million) per year. The program is expected to generate £68 million ($125 million) this year for spending on transit improvements, and is expected to increase to £80-£100 million ($147-$184 million) in subsequent years as improved enforcement is implemented.

Results:

The results of the first six months of the program are summarized below.

- The number of motor vehicles entering the charging zone during the charging hours has dropped by 16 percent.
- The number of accidents has been reduced by 20 percent.
- Average speed of traffic during charging days increased 37 percent, from 8 miles per hour the previous year to 11 miles per hour after pricing was introduced.
- Peak period congestion delays declined by about 30 percent and bus congestion delays declined by about 50 percent.
- Bus and subway ridership increased by 14 percent and 1 percent, respectively.
- Taxi travel costs declined by 20 to 40 percent due to reduced delays.
- Motorcycle, moped and bicycle travel has also experienced some increases.

Status:

Errors/problems with the congestion pricing system have led to a full program of improvements that will be completed by the end of March 2004. The Mayor is now considering extending the program into western London, which could potentially be implemented in 2006.

Name:	Removal of Park East Freeway Stub
Location:	Milwaukee, Wisconsin

History/Justification:

The Park East Freeway was part of a never completed 1960s ring road in Milwaukee. The construction of the ring road was halted in 1978; however, the freeway had already cut through a mile of city streets between I-43 and the central business district and cleared land to the east for the next segment. The success of a luxury rental apartment and condominium complex and supermarket built in 1991 on the land prepared for the next segment of the ring road along with the need to repair the Park East Freeway for an estimated $80 million price tag ignited the demolition thought process.

The 1995 traffic study by the Southeastern Wisconsin Regional Planning Commission played a key role in convincing people and businesses that Milwaukee would not be crippled by the Park East Freeway's demolition. The traffic study revealed that the central business district can accommodate its removal without significant increase traffic congestion. The Park East Freeway carried 54,000 vehicles per day in 1999. The removal of the freeway would create residential development, which would bring more people to downtown and support entertainment and restaurant development. A comprehensive plan for downtown Milwaukee was developed and adopted by the city's planning commission in 1999, which proposed using the highway corridor for:

- Mixed-use residential buildings,
- An entertainment complex,
- A new square,
- A hotel,
- A parking structure and transit transfer building, and
- Streetscape enhancements.

Description:

The Park East Freeway Stub has been replaced with an at-grade, three-lane boulevard from North 6th Street to North Water Street. The project also includes the construction of a new lift bridge spanning the Milwaukee River connecting West McKinley Avenue with East Knapp Street.

The freeway demolition extended from North 6th Street to North Jefferson Street, which will result in the redevelopment of 26 acres beneath and adjacent to the elevated freeway. The removal of this freeway fosters an overall redevelopment plan for the Park East area, which includes 60 acres. The 60-acre parcel will be divided into three general areas:

- McKinley Avenue -- large parcels near I-43 that make it a likely place for new offices
- Lower Water Street -- residential development overlooking the river, along with small and midsize offices and street-level retail and night-life tenants
- Upper Water Street -- additional residential developments

Cost:	The project cost $25 million to tear down the freeway and rebuild the adjoining streets, which was less than the $80 million that would have been spent on the freeway's reconstruction project.
Expected Results:	The project is estimated to yield more than $250 million in new investment. It is also expected to continue the growth and revitalization of the downtown, provide new investment and job opportunities, and increase its tax base.
Status:	The removal of the freeway is complete. The lift bridge and roadway construction are in the final stages and are expected to be completed by June 2004. The Redevelopment Authority of the City of Milwaukee is creating a redevelopment plan, which sets development standards in the Park East corridor that are consistent with the Downtown Master Plan.

Name:	Transitway
Location:	Ottawa, Ontario

History/Justification:

In the early 1970s, the Regional Municipality of Ottawa-Carleton began to plan for future needs of rapid transit in the City of Ottawa. The *Rapid Transit Appraisal Study* identified the future direction and priorities for transit development in the region to accommodate population growth to 750,000 and anticipated an investment of $300 million in 1973 dollars (or approximately $1.27 billion in 2002 dollars) over a period of 20 years. The City had a population of 472,000, with an employment base of 214,000 jobs. Most jobs were located in the downtown area and government was the primary employer.

The Rapid Transit Appraisal Study led to the conceptual planning of the transitway (busway) system that extends from outlying suburbs and Ottawa's Airport into the central city. Ground was broken for the first phase of the Transitway in 1981 and construction was completed for the entire 19.25 mile project in 1996. The Transitway system consists of exclusive busways, HOV lanes and preferential treatment for buses in mixed traffic. The City of Ottawa also introduced its first rail transit service, O-Train, as a pilot project in the fall of 2001.

Description:

The Transitway first opened in 1983, linking five stations:

- Hurdman and Lees in the east end, and
- Baseline, Queensway and Lincoln Fields Stations in the west.

Today, the Ottawa Transitway consists of three routes (Routes 95, 96, and 97) that serve stations along a right-of-way that consists primarily of grade-separated lanes. Its design allows for use by any bus and for overtaking of buses at critical bottlenecks (stations and junctions), which enables the system to accommodate a significant amount of transit service in addition to the three primary routes. The Transitway guideway serves as the trunk line branch for the various express bus service, which expedites travel to downtown Ottawa and to all the major activity centers located at Transitway stations.

The Transitway system has been expanded since its completion in 1996 through new stations, park and ride lots, and freeway and arterial bus-only lanes. The City operates a fleet of over 900 standard and articulated buses on more than 140 individual bus routes.

The City of Ottawa currently has approximately 31 miles of transit service, which includes the Transitway, the O-Train and local feeder buses.

Cost:

- The total cost of the Transitway including stations, the right-of-way and the exclusive bus lanes was $420 million (or approximately $600 million in 2002 dollars).
- The O-Train pilot project capital costs were approximately $21 million and its operating costs are $4 million per year.

Results:

Transitway

- 220,000 passengers use the express bus and transitway system each day.
- Officials indicate that the transitway represents a capital and operating cost savings of $75 million for buses and $35 million per year for operations.

O-Train

- Complements the Transitway system
- Approximately 6,500 passengers use the trains each day
- Reliable and not affected by weather

Status:

The *Rapid Transit Expansion Study* (RTES), approved in February 2003, defines the next steps and future plans for rapid transit to be phased in over the next 20 years. The study recommends expanding the O-Train corridor as the priority project that will go forward as the first initiative, with others planned to follow until the year 2021. The BRT additions (about 38 miles) are planned to include 5 park and ride lots and 49 new stops in addition to new vehicles and storage facilities. The planned expansion to the rapid transit program is estimated to cost $3.4 billion (2003 dollars) over the next 20 plus years.

Name:	Baltimore Washington Maglev
Location:	Washington, D.C. and Maryland along Existing Amtrak Corridor

History/Justification: The Maryland Transit Administration (MTA) is taking the lead on developing a Maglev transportation system in the Baltimore-Washington corridor. Over the next 40 years, business, recreational, tourist and commuter travel demands are projected to increase in the corridor. In order to meet increasing demands on the transportation system and to take advantage of the Federal Railroad Administration's (FRA) Maglev Deployment Program funds, the MTA opted to explore the potential for a Maglev system between downtown Baltimore and downtown Washington D.C. The 40 mile Baltimore-Washington Corridor was chosen by the FRA as one of two potential pilot areas for Maglev. Along with demonstrating a new technology, Maglev is viewed by the MTA as a key project to addressing traffic congestion in the corridor. Per the requirements of the Maglev Deployment Program, a draft Environmental Impact Statement was completed to address the impacts of the system in the corridor and to select a preferred route. The proposed route is along the existing Amtrak corridor between Baltimore and Washington D.C.

Description:

The proposed system has the following features:

- Three underground stations (downtown Washington DC near Union Station, downtown Baltimore near Camden Yards and BWI Airport)
- One-way fares ranging from $13.80 to $27.60 between Baltimore and Washington D.C.
- Dual above ground guideway
- Fleet size of 7 train sets each with three sections
- 20 hour operation
- 10 minute peak headways
- Speeds up to 300 MPH
- 20-acre maintenance facility
- 20 minute travel time between Washington D.C. and Baltimore

Other considerations for the system include future links to major cities such as Philadelphia and New York and intermodal connections at the three proposed stations.

Cost:	The estimated cost is $3.74 billion (2002 dollars) and includes the construction of 39.1 miles of guideway, the three underground stations and maintenance facility, three parking structures and substations, transformers and other electrical distribution facilities.
Expected Results:	Full operation of Maglev could occur by 2010. It is estimated that the annual ridership would be about 9.2 million passengers (27,200 one-way trips per day), even with continued Amtrak and MARC service. Its high speed would make it more competitive with air travel than high speed rail. The system could eliminate up to 30,000 vehicle trips per day in the region helping to reduce traffic congestion. The system could also provide a boost to the regional economy by inducing additional tourism, creating additional manufacturing jobs and having the spin-off effect of creating a research and development industry for Maglev technology in the region. Other benefits include reducing air pollution and eliminating safety conflicts with other ground level uses.
Status:	Several public hearings were held at the end of 2003. Comments received are to be recorded and responses are to be produced (possibly by altering the proposed design or operation of the Maglev). The next steps are to prepare the Final Environmental Impact Statement and issue a Record of Decision by the MTA and FRA as to whether the Build or No Build option should be pursued. This phase should be completed by the end of 2004. The U.S. Congress should decide which of the two Maglev finalists are to receive funding in 2005. The Baltimore-Washington Corridor is competing with Pittsburgh for $950 million to help implement Maglev.

NEW VISIONS 2030
"COSTS AND BENEFITS OF POTENTIAL MAJOR INVESTMENTS"
Candidate Project Overview

Name:	Vancouver Greenways Program
Location:	Vancouver, British Columbia

History/Justification:
In August 1991, Vancouver City Council appointed the Urban Landscape Task Force to find out what people in Vancouver value about the urban landscape, and to recommend how best to manage, protect, and enhance it. After a year of extensive public consultation, the Task Force produced the "Greenways-Publicways" report, which recommended the connection of all parts of the city with a system of greenways. In November 1992, the City Council adopted, in principle, the Greenways System concept, and the eight "Urban Landscape Principles for Decision Making". The Principles are recognize legacies; recognize diversity and balance; care for and respect the environment; make connections; create a community; encourage innovation; be fair and equitable; and make informed decisions. The City Council adopted the final Vancouver Greenways Plan in 1995, which included the proposal for City and Neighborhood Greenways and a recommended implementation strategy.

Description:
The proposed City Greenway network of 14 routes is approximately 87 miles (140 km) long. The goals of the City Greenway are:

- Make walking more interesting
- Make cycling safer and more convenient
- Reduce the impact of the car
- Make the Greenway 'greener'
- Use public art to make the Greenway more interesting

Street rights-of-way will comprise about 50% of the network. About 25% of the network is already in place as a result of the Seawall development and other greenways development since 1994. Greenways are generally evenly distributed throughout the City; however, routes are concentrated in areas with greater population density and a higher number of destinations, like the downtown peninsula. When the network is complete, a City Greenway will be no more than a 25-minute walk or a 10-minute bike ride from every residence in Vancouver.

Neighborhood Greenways are distinguished from City Greenways by the following four criteria:

- They are initiated by local residents.
- They connect local community amenities such as parks, schools, libraries, community centers, shopping streets and places of special meaning (i.e. a group of heritage houses, an interesting street or a corner store).
- They reflect local character and identity by providing opportunities to express the unique character of the area and by adding details and activities to the public landscape.
- They consist of smaller projects and shorter routes and are maintained by the community once completed.

Communities take the lead in creating or improving local connections in partnership with the City. City staff provides assistance in the design, development, and construction where and when support is needed.

Cost:	The 1994-1996 Capital Plan allocated $1.5 million toward greenway development, which included $1 million for City Greenways (primarily Ridgeway Pilot Project) and $500,000 for Neighborhood Greenways.
Results:	The City and Neighborhood Greenways expand the opportunities for urban recreation, provide alternate ways to move through the city, and enhance the experience of nature, community, and city life.
Status:	Since the Task Force's report, the Ridgeway and Ontario Greenways have been completed. The City of Vancouver is currently working on the Downtown Historic Greenway, which includes the Silk Road (Chinatown) and Gastown/Yaletown walking routes. Other greenways will be completed incrementally as the City takes advantage of opportunities created by downtown and waterfront re-developments.

Name:	Minnesota DOT Noise Abatement Program
Location:	Minnesota

History/Justification: In 1976, the U.S. Congress passed legislation requiring that states provide mitigation for highway noise (considered an environmental impact) as a part of all Type I Federal Aid projects (those involving new or widened highways) at impacted locations where it was found to be reasonable and feasible. However, legislation does not require noise abatement programs for Type II Federal Aid projects (noise abatement project on existing highways). In order to use federal funds for Type II projects at all, a state DOT must have an FHWA approved Type II noise abatement program. Federal law further limits the use of federal funds on Type II projects to locations where the adjacent residential land uses were present before a highway was planned or constructed, going all the way back to the 1950's.

In 1995, the Minnesota Legislature requested that Mn/DOT study highway noise conditions along freeway and expressway areas. The Minnesota Highway Noise Abatement Study identified areas where state and federal noise standards are being exceeded, assessed the feasibility, reasonableness and cost effectiveness of implementing noise mitigation measures, and reported to the Legislature the measure taken and being planned to reduce and minimize the effects of highway noise. The study was completed in 1997 and provided a framework for identifying where funding for noise mitigation can be targeted to achieve the most cost effective benefits for state residents. The unique aspect of Minnesota's noise abatement program is that it directly addresses Type II Noise Abatement projects through the use of state funds. Type II projects are ranked in priority by the Noise Study as directed by the Minnesota Legislature. Due to the federal funding limitations on retrofit projects, only fifteen states have FHWA approved programs for Type II projects. Of those, Minnesota's is considered one of the most extensive programs.

Description:

Minnesota's Noise Study identified 811 sites statewide in residential areas that are located adjacent to freeways and expressway. Of those sites, 54 areas along trunk highways were identified in the study as offering the most cost-effective opportunities for retroactive noise mitigation. In order to be included in the priority list, the noise level at the site had to exceed 67 dBA. Cost-effectiveness is based on the cost per housing unit to meet state noise standards. Therefore, those areas with higher density housing and lower construction requirements to meet the state noise standards are ranked the highest. The cost effectiveness formula essential works out to being $3,250 per dBA * Number of Residences Receiving > 5 dBA noise reduction.

The Metro District of Mn/DOT (Minneapolis/St.Paul) is the only district in the state actively involved in traffic noise abatement where 48 of the 54 key sites were identified. Collaboration and cost sharing is provided by Metro MPO and local communities for accelerated completion of projects.

Cost:	Mn/DOT's Metro division has set aside $1.5 million a year beginning in 2000 from its construction and maintenance budgets for the next three years ($4.5M) to address noise abatement.
Expected Results:	It is estimated that it will take 17 years to fund the 48 highest priority residential areas for noise mitigation in the Minneapolis/St. Paul metropolitan area.
Status:	Despite limited funding, Mn/DOT is pursing noise wall projects throughout the state. However, negative aspects of noise walls, including their inability to reduce noise under certain conditions, has resulted in the public and local governments rejecting noise wall implementation in some areas.

Name:	California High Speed Rail System
Location:	California

History/Justification:

The number of passengers traveling between major metropolitan regions in California is forecasted to increase up to 63% over the next 20 years (from 155 million to 253 million). With the state's population projected to increase by 31% by 2020, the need for improved intercity transportation has never been greater. Most of the population increases are expected to occur in the Central Valley and in the Los Angeles metropolitan area. Intercity transportation services are insufficient to meet this future demand but more importantly, are insufficient to meet current demand. The lack of intercity transportation services has contributed to traffic congestion, poor air quality, reduced travel reliability and longer travel times. Interstate highways and commercial airports are currently at or near capacity in some areas and tremendous investment would be necessary to meet future demand.

The high speed rail system (referred to as the HST system) was first proposed in the mid 1990's by the California High Speed Rail Commission. The environmental effort began in 1998 with feasibility studies and community outreach. It was thought that the HST system would help alleviate some of the current intercity transportation issues facing California while being sensitive to the natural environment. The draft environmental impact statement states that the system should maximize the use of existing transportation corridors and rights-of-way, be implemented in phases, and be completed by 2020.

Description:

The proposed HST system would serve the major metropolitan areas of California including the San Francisco Bay area, Sacramento, the Central Valley, Los Angeles and San Diego.

The system would be electrically powered, have largely exclusive use of the track and use steel wheel on rail technology that would allow trains to travel at speeds in excess of 200 mph.

Travel times would be comparable to air and auto travel (for example, a trip between San Francisco and Los Angeles would be just under 2 hours and 30 minutes). Several corridor/alignment and station options are included in the environmental impact statement.

Cost:	The cost is estimated to be between $33 billion and $37 billion (2003 dollars), depending on the alignment and station options selected. This estimate includes right-of-way, track, guideway, tunneling, stations, and mitigation.
Expected Results:	By 2020, the system should include 86 weekday trains in each direction carrying roughly 42 to 68 million passengers.
Status:	The draft program EIR/EIS for the project is currently available for public comment per the 90 day requirement. Public hearings will be held throughout 2004 and a final EIR/EIS will likely be completed at the end of 2004 or in 2005. The final will likely include a preferred route alignment and station designs.

Name:	Automated Traffic Surveillance and Control System
Location:	Los Angeles, California

History/Justification:
The City of Los Angeles is comprised of about 4,400 signalized intersections, which is the second highest number of City traffic signals in the country. Since 1984, the City has implemented Automated Traffic Surveillance and Control (ATSAC) System technology at approximately 3,000 of these signalized intersections. The ATSAC system was developed and is managed by the City of Los Angeles Department of Transportation (LADOT). It is an interconnected and coordinated signal system that automatically monitors and manages surface street traffic.

Description:
ATSAC is a computer-based traffic signal control system that monitors traffic conditions and system performance, selects appropriate signal timing (control) strategies, and performs equipment diagnostics and alert functions. Sensors embedded in the street detect the passage of vehicles, vehicle speed, and the level of congestion. This information is received on a real-time basis and is analyzed on a minute-by-minute basis at the ATSAC Operations Center to determine if better traffic flow can be achieved by changing the signal timing. The signal timing is either automatically changed by the ATSAC computers or manually changed by the operator using communication lines that connect the ATSAC Center with each traffic signal. To supplement the information from electronic detectors, closed-circuit television (CCTV) surveillance equipment has been and continues to be installed at critical locations throughout the City.

The ATSAC system also has the ability to add new traffic control features through software without building new systems or replacing large quantities of hardware, such as systems to allow for bus priority operation along major bus commuter routes. The latest enhancement to the ATSAC is the Adaptive Traffic Control System (ATCS) that has been added over the last four years. It uses a personal computer-based traffic signal control software program that provides fully traffic adaptive signal control based on real-time traffic conditions. The ATCS enhancement enabled the City to successfully implement the Transit Priority System (TPS) on four of the busiest transit corridors in Los Angeles, which included 357 signalized intersections and 53 miles of roadway. The TPS is planned to be added to 24 more transit corridors, which includes 1,140 signalized intersections.

Cost:	It has cost approximately $182 million to implement ATSAC at 3,000 signalized intersections. The current annual operating cost for staff is about $1.3 million and annual equipment maintenance cost is $301,000.
Results:	• Capable of continually measuring traffic volumes and congestion levels for analysis of trends and other transportation planning purposes. • Evaluation studies indicated that the ATSAC reduces travel time by 12%, intersection delay by 32%, and intersection stops by 30% when compared to traditional traffic signal timing optimization practices. • Every dollar spent on this program results in $32 million in tangible benefits for recurrent travel conditions, which include monetary savings from reduced fuel consumption and reduced business-related travel time. • It is responsible for the fiber optic network in the City. • Is has shown to be indispensable in responding to non recurrent events such as parades, freeway closures, special award ceremonies, major sporting events, and in emergencies.
Status:	The City has received funding to implement the ATSAC technology at 1,000 more signalized intersections.

Name:	Light Rail and Land Use Development
Location:	Portland, Oregon

History/Justification:

In 1970, Portland's downtown, like most of those across America, was dying. This forced the City to look at how to grow the right way. Successful growth had to include changing land use, as well as increased spending on roads and transit. The key elements in Portland's success included collaboration between strategies and among governments:

- A downtown plan that focuses the most intensive development adjacent to transit
- Strict limits on the amounts of parking (no minimums and tightening maximums)
- Requiring development at a pedestrian scale (no blank walls, buildings up to the street, and 60% of ground floor uses as retail)
- An investment in improved transit
- A balanced transportation strategy (no new road capacity has been added to the downtown for 20 years)
- An urban growth boundary that legally defines what's urban and what will remain rural

This led to TriMet's light rail system, Metropolitan Area Express (MAX). MAX was implemented as a vehicle to move people, to shape the region, defer highway investments, to clean the air, and to enhance the quality of life in Portland. Implementing a light rail system did not create a livable community, which was Portland's ultimate goal. The integration of land use and transit were the tools Portland used to achieve a livable community, which is a continuously evolving process that began more than 20 years ago.

Description:

A $1.2 million planning program paid for out of the MAX construction budget was the first step into looking at the development potential presented by having light rail. The Transit Station Area Planning program laid the foundation for development along the line by determining market potentials, planning for the urban fit of the project, and rezoning station areas. Before construction started on MAX, every station area along the corridor had been rezoned to stimulate transit related development around the stations.

A working partnership was developed between the local governments and the transit district, which each had expectations of the other. TriMet asked local governments along the rail corridor to take action to make development physically more dependent on transit by limiting parking, constraining vehicle access, widening sidewalks, improving pedestrian access, allowing a mix of uses, and higher density development. In exchange, TriMet is expected to provide the necessary service to accommodate their growth.

Today, TriMet's MAX is a 38-mile light rail system that connects the cities of Portland, Gresham, Beaverton and Hillsboro, and the Portland International Airport. A 1984 study indicated that without TriMet, six 42-story parking structures would have to be added to Portland's skyline and two additional lanes to every major highway entering the downtown.

Cost:	Approximately $1.3 billion has been spent on the construction of the 38-mile MAX rail line.
Results:	• $3 billion in development has occurred within walking distance of MAX stations since the decision to build in 1978. • The physical and psychological barrier of the Willamette River was removed and the downtown was expanded to the east side of the river (Lloyd District). • The number of jobs has grown from 50,000 in 1975 to 86,000+ today. • Nearly 40% of downtown work trips arrive via transit. • Light rail investment has not prevented an increase in regional highway congestion, but has allowed for a travel alternative to congested highways. • Air quality has noticeably improved. • Development community increasingly sees a competitive advantage in being located next to MAX.
Status:	The next challenge for Portland is to apply the lessons that they have learned with MAX and the revitalization of downtown on a regional scale. Because Portland's suburbs are experiencing the same trends as many other cities—disappearing open space, increased dependence on the automobile and an explosion in Vehicles Miles Traveled (VMT).

Name:	State Route 91 Congestion Pricing
Location:	California (Orange County to Riverside County)

History/Justification:

California State Route (SR) 91 is a 12-lane freeway connecting the employment centers of Orange County to the residential developments of Riverside County. Rapid growth in commuting and lack of an alternative route in this corridor during the last two decades has put a severe strain on SR-91. By the mid-1990s the average commuting time on SR-91 had grown to over an hour a day each way, almost three times the national average. This led to the opening of four 10-mile toll lanes in the median of the existing freeway on December 27, 1995.

Description:

The SR-91 Variable-Toll Express Lanes is the first fully automated toll road in the world. It is located in the freeway median between SR-91/55 junction in Anaheim and the Orange/Riverside County Line. The toll facility provides two extra lanes in each direction, separated from the adjacent freeway lanes by a "soft" barrier consisting of a painted buffer with pylons. The lanes operate as an express facility, meaning that there are no intermediate exits or entrances along the 10-mile length. Heavy vehicles are prohibited from the toll lanes.

Under Caltrans supervision, the express lanes were designed, built and are operated by the California Private Transportation Company (CPTC) on land leased from the State of California. The franchise agreement gives CPTC 35 years to return a profit to its investors, after which time the toll lanes revert to full state control. The agreement between CPTC and Caltrans also contains a "non-compete" provision through which Caltrans agreed not to make freeway improvements that undermine CPTC's business, unless required for highway safety.

The tolls which vary from a low of $0.75 during periods of lowest demand to $3.75 during the height of the Friday afternoon peak period. The current tolls follow a published schedule; however, the technology would permit the toll levels to vary dynamically. A "91 Express Club" was created in January 1997, which permits frequent users to pay a flat $15 monthly fee and receive a $0.75 discount on each trip made, regardless of time of day. This monthly club is beneficial for those who use the express lanes more than 20 times per month.

All tolls are collected by Automatic Vehicle Identification (AVI). Only registered customers equipped with suitable transponders are permitted in the toll lanes.

Cost:

The four-lane, 10-mile long toll facility was constructed for approximately $134 million as a private for-profit investment.

This private-public partnership experiment was authorized by the California Legislature under the AB 680 legislation enacted in 1989. It became a candidate for implementation under AB 680 because of the region's inability to fund necessary improvements in the corridor within a short time frame. Had public funds been used for improvements, the added capacity would have included new HOV lanes, or a combination of HOV and general purpose lanes. However, implementation would have been 5 or more years later than the improvements constructed through the private-public partnership.

Results:

- Relatively low capital costs (less than $3.5 million per lane-mile).
- Before the Express Lanes opened, peak period delays of 20-40 minutes were typical. The capacity increase from adding two new lanes in each direction initially reduced delays in the free lanes to less than 10 minutes. However, more severe congestion has since returned, but is not yet at the level experienced before the express lanes opened.

Status:

As of January 3, 2003, the Orange County Transportation Authority (OCTA) took public ownership of the 91 Express Lanes from the private firm that had owned and operated it since its inception in 1995. The OCTA purchased the Express Lanes for $207.5 million, which will be paid off with future toll revenues.

Name:	AirTrain JFK
Location:	New York City

History/Justification:
Like most US airports, direct access to John F. Kennedy International airport (JFK) via rail is not provided. In the early 1950s, when the Van Wyck Avenue was expanded into an Expressway (VWE) intended to carry air passengers to and from the airport by car, it was almost immediately choked with traffic. Today, the VWE serves 75% of all JFK passengers and is still the primary choice for surface access. However, the VWE can be congested for up to 10 to 11 hours a day, delaying passengers, airport and airline staff, and air cargo. Within the Central Terminal Area (CTA) the congestion created by buses, taxis, limousines, and private vehicles picking up and dropping off passengers during peak hours has made the airport a victim of its own success. Therefore, the Port Authority, with the support of the US Federal Aviation Administration (FAA), implemented the AirTrain light rail system to improve both airport access and intra-airport mobility. Construction of AirTrain JFK began September 16, 1998 and was open for service on December 17, 2003.

Description:

The AirTrain is an automated people-mover shuttle system that shuttles passengers between the Main Terminal and Satellite Buildings within JFK, and the Jamaica Transit Terminal where they can transfer to the Long Island Railroad (LIRR) or the Metropolitan Transportation Authority's (MTA's) network of subways and local buses.

The light-rail system provides fast, dependable service to and from JFK on an 8.1 mile elevated guideway structure. The 10-station system consists of three main segments:

- An elevated 1.75 mile circulator loop with six stations, linking the nine airline terminal buildings in JFK's CTA. Column supports at the edge of the circulation roadway allow pick-up/drop-off zones and crosswalks to function.
- A 3 mile branch with stops at airport car rental facilities and employee/long-term parking lots, terminating at the Howard Beach station with subway access to Queens, Brooklyn and Manhattan.
- A 3.25 mile branch above the VWE to Jamaica, where a modern, renovated terminal offers easy transfers to the LIRR, subway, and over a dozen omnibus routes. From the LIRR, riders can connect easily to Manhattan, to eastern Long Island, and with other public transport servicing the northeastern US.

The trains run under automatic train control (ATC), transmitting details of each one's location back to the central hub. While ATC is the main mode of operation, the system can be run manually in an emergency. Stations are equipped with dynamic displays showing real-time information of train movements, a PA system and CCTV cameras. At the AirTrain stations, customers are provided with airport-related passenger amenities, such as directory and flight information and a baggage cart pick-up zone.

A single ride from Howard Beach or Jamiaca to the airport costs $5, monthly passes are available for $40, and a ride from midtown is expected to take about 45 minutes. Passengers using AirTrain within the airport are not charged.

Cost:	The light-rail system cost approximately $1.9 billion, which was funded from $3 surcharges on departing air passengers and Port Authority capital funds.
Results:	• Reduces the travel time from midtown Manhattan from 75 minutes or more to less than 45 minutes. • Expected to be used by 34,000 passengers daily in its first full year of operation. • Port officials anticipated that the construction of the AirTrain would bring up to $580 million into the local economy.
Status:	The implementation of the AirTrain system was the first major step in providing rail access to JFK. Planners are studying the feasibility of a direct rail link from lower Manhattan to JFK.

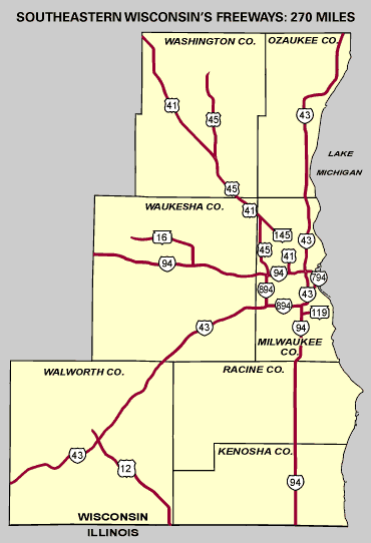
NEW VISIONS 2030
"COSTS AND BENEFITS OF POTENTIAL MAJOR INVESTMENTS"
Candidate Project Overview

Name:	Regional Freeway System Reconstruction Study
Location:	Southeastern Wisconsin

History/Justification: The Secretary of the Wisconsin Department of Transportation (WisDOT) requested that the Southeastern Wisconsin Regional Planning Commission (SEWRPC) lead a planning effort aimed at achieving a consensus on how best to rebuild the regional freeway system. The primary reason for the study was the anticipated need to initiate and complete the reconstruction of the 270-mile freeway system over the next 30 years to 40 years. The freeway system is critical to daily travel, because about one-third of all travel within the Region on an average weekday is made on the freeway system. Segments of the freeway system do not meet current freeway design standards including lane drops at interchanges, left-hand entrance and exit ramps, inadequate merging and diverging lane lengths, and inadequate shoulders and lateral clearance. It is also experiencing increasing traffic congestion. Also, reconstruction of the system represents jobs and economic opportunities over the next 30-40 years for local businesses, especially minority businesses.

Description: The Freeway Reconstruction Study was an extensive two year study that included a system-wide evaluation of freeways in the seven county Southeastern Wisconsin Region. The study findings and recommendations were based on an evaluation of the following:

- Deteriorating condition of the freeway system and need for reconstruction
- Function of the freeway system
- Physical design deficiencies, traffic accident history, and traffic volume and congestion
- Potential for improved and expanded transit services, including rail transit systems, to avoid freeway widening
- Alternatives for freeway system reconstruction
- Comprehensive consideration of costs and impacts of freeway reconstruction alternatives
- Substantial public information and input (19 public meetings and hearings, study website, newsletters, opinion survey, and study briefings)
- Recommended plan advanced by Advisory Committee



The final plan recommends the reconstruction of the freeway system to modern design standards and additional lanes on 127 miles of freeway. The design improvements would include the relocation of left hand on-and off-ramps to the right hand side, the minimization of lane drops, the provision of longer and wider ramp tapers, the provision of full inside and outside shoulders, and other design improvements. Additional lane capacity is recommended for nine freeway segments within the system, which includes six segments that would be widened from 6 to 8 lanes and three segments that would be widened from 4 to 6 lanes.

Cost: The total estimated cost to reconstruct the regional freeway system under the recommended plan is $6.23 billion over the next 30 years ($208 million annually). The total cost includes $3.37 billion for base cost of reconstruction (rebuild as is), $2.15 billion to make improvements needed to meet modern design standards, and $0.71 billion for the additional lanes on 127 miles of the freeway.

Expected Results:

- The additional lanes recommended to the freeway system represents 11% of the total cost of the system reconstruction, but provide a 33 to 50 percent increase in the traffic-carrying capacity of the freeway system.
- An estimated 201 homes and 28 businesses would need to be acquired for the reconstruction of the system.
- The property tax base impact to the entire Region is estimated at about $194 million over the next several decades. Meaning that the Region will lose tax base over the next several decades as a result of property acquisitions.
- The project is anticipated to reduce travel times, reduce congestion related safety problems, and increase travel time reliability.

Status: The final study report was adopted by SEWRPC as an amendment to the regional transportation plan at a meeting held May 21, 2003.

Name:	FAST Corridor Program
Location:	Seattle/Tacoma/Everett area in Washington State

History/Justification:
The Puget Sound region is an important area for trade with Pacific Rim countries as the Ports of Seattle, Everett and Tacoma represent the third largest deepwater container shipping complex in the U.S. Freight movement is critical to Washington State's economy as one out of every three jobs is tied to international trade. The Puget Sound region is also home to one of the largest concentrations of warehousing in the U.S. with about 90 million square feet of storage, excluding Boeing's facilities. With changing business practices, new technologies and national and international trends impacting how, when and where goods move, the need for improved capacity and greater predictability of the transportation system has never been greater. This, coupled with increasing congestion around the region's Ports may put at risk the future vitality of the regional economy. In response, the region created a number of freight supportive initiatives to help strengthen international trade. One of these initiatives is the Freight Action Strategy Corridor or the FAST Corridor.

Description:
The FAST Corridor area was identified as one of the high priority corridors on the National Highway System in ISTEA. The Corridor is focused on the international ports, railways and truck facilities lining the I-5 corridor along Puget Sound. The FAST Corridor partnership was established in 1994 and includes the state DOT, the MPO, the three Ports, 12 cities, two counties and several rail and trucking companies.

A phased project implementation plan for the FAST Corridor was completed in 1997. Phase I of the effort involved the identification of 15 priority projects in the corridor that would enhance the freight transportation system. The projects included replacing at-grade rail crossings with grade separated crossings, truck overpasses and safety and capacity enhancements to Port access roads from the Interstate system. The goals of the projects are to improve safety and streamline freight movement in the region.

Due to the success of Phase I, Phase II was created to add 10 projects to the program. Phase II projects emphasize freight mobility strategies that can be most effectively applied to a wide variety of geographic locations within the region, and improvements to specific corridors that offer the greatest opportunities to improve the regional system of freight mobility. ITS projects to enhance goods movement are included in the Phase II package of projects.

Cost:	Phase I costs were estimated to be $470 million. Phase II costs are estimated to be $265 million. Early estimates in 2004 indicate that the total cost for Phase I and Phase II will be $782 million. The projects would be financed through a number of sources including local, state, federal, port, and railroad funds.
Expected Results:	The investment in the FAST Corridor today is expected to help the Port complex remain competitive over the next 20 years in anticipation that by 2020, container traffic in the region will double. Along with the safety improvements related to grade separations, the FAST Corridor program will enhance the transportation system for all motor vehicle travel.
Status:	Phase I projects are expected to be completed or under construction by 2005. Phase II projects are currently in the design stage, if initiated at all.

Name:	Metromover
Location:	Miami, Florida

History/Justification:
As part of the Metropolitan Dade County Transportation Improvement Program, the Metromover was built to provide a means for downtown circulation and serve as a downtown feeder for Metrorail, the heavy rail system. The Metromover was the first automated downtown peoplemover in the United States. The construction began in June 1983 and opened for operations in May 1986, with 1.9 miles of double track and 10 stations. The success of this system led to a new extension of 2.5 miles of track and 12 stations, which opened in May 1994.

Description:

The Miami Metromover began as a 1.9 mile double-loop, elevated, fully-automated system designed to serve as a downtown distributor/collector for Miami's 21 mile Metrorail system and as a circulator for trips between hotels, retail facilities, convention facilities and parking areas within the downtown. It is connected to the Metrorail system at a multi-level station downtown. Another Metrorail connection is provided at the Brickell Station.

The 2.5 mile extension, which was completed in May 1994, was mostly double track and is divided into two legs. The Brickell leg is to the south and consists of six stations and 1.1 miles of track. The other leg, Omni leg, has its own six stations and 1.4 miles of track. The expansion serves Miami's financial and office district south of the Miami River, linking downtown and the Brickell financial and residential district over the river. The entire system now consists of 4.4 miles of track and 22 stations and connects to the rapid rail at two locations.

The technology was provided by AEG-Westinghouse and features vehicles designed to carry 82 standing and 14 seated passengers. The average speed of travel is about 12 mph as compared to 30 mph for Metrorail. Cars are equipped with rubber tires that provide a smooth, quiet ride and each is fully air-conditioned. The fare for the Metromover is free. Service is provided on the inner downtown loop 24 hours a day. The Brickell and Omni loops, known as the outer loops, service runs from 5:30 AM to midnight.

Cost:	The initial 1.9 mile system cost about $159 million (1986 dollars), or $83.2 million per mile. The May 1994 extension costs about $228 million, or $91.2 million per mile.
Results:	The Metromover has experienced lower than expected ridership levels, which is about 14,000 passengers on weekdays. However, many new buildings have been built in downtown Miami and Metromover has had a positive influence on these development decisions.
Status:	Miami-Dade County plans to spend $16 million to refurbish or replace 12 of the system's 29 vehicles, which will occur by 2005. Transportation officials plan to eventually improve the entire system.

Name:	Inner Harbor
Location:	Baltimore, Maryland

History/Justification: During the 1700's and 1800's, the Inner Harbor area (then known as Cheapside Wharf), was the bustling commercial center of Baltimore. Fire destroyed the area in 1904 leaving many merchants unable to rebuild. By the 1950's, the Inner Harbor was decimated with abundant derelict warehouses, abandoned cars and deserted streets. Overcrowded and deteriorating neighborhoods were causing many to leave the City for other areas, further deteriorating the once thriving retail center. It was in the late 1950's that the community began to take steps to reverse this downward spiral and a group of 50 CEO's from major companies formed the Greater Baltimore Committee eventually leading to a public/private partnership and the goal of creating a comprehensive plan for downtown. A few small projects jump started the effort to revitalize downtown, one of which was adopted as the City's official urban renewal plan, but it was not until 1964 that the City and the Committee created the comprehensive plan. The plan provided basic guidance on the redevelopment of 240 acres over 30 years at an estimated cost of $260 million. A key theme in the plan was the idea of bringing the public to the water's edge. Later in 1964, voters passed $2 million in bonds to finance the first steps of Inner Harbor revitalization.

Description:
Many of the key Inner Harbor projects were constructed in the 1970's and early 1980's. Among them are the following:

- Restoration of the U.S.S. Constellation
- Completion of the shoreline promenade
- Completion of the Christ Lutheran Harbor Apartments
- Completion of office buildings for U.S.F. & G. and IBM.
- Completion of the Maryland Science Center
- Completion of the National Aquarium and Baltimore Convention Center
- Completion of Harborplace
- Completion of the Baltimore Hyatt, the first Inner Harbor Hotel

Of all the projects, it was Harborplace that became the catalyst and transformed the Inner Harbor area into something far beyond what anyone envisioned when it opened in 1980. Harborplace involved the construction of two pavilions of shops and restaurants along the Inner Harbor promenade creating a gathering place for residents and visitors along the waterfront. It is patronized today by upwards of 15 million people annually. Following the opening of Harborplace, more than a dozen new developments have been added to the Inner Harbor including The Gallery at Harborplace, Camden Yards for the Baltimore Orioles and most recently the M&T Bank Stadium for the Baltimore Ravens.

Cost:	As a number of fund sources were used to finance the various projects, it is difficult to determine the level of investment in Inner Harbor projects. However, one estimate puts the dollar value at over $2 billion (in 2004 dollars).
Expected Results:	The plan for the Inner Harbor area worked far better than imagined. The Inner Harbor has been transformed from a derelict, run down area to a vibrant, active attraction for both residents and visitors alike and is expected to do so for some time to come.
Status:	As of the end of 2001, 22 new projects valued at over $1.3 billion are planned. However, Harborplace was never designed for the number of people that have visited the facility over the years and it is showing its age along with the waterfront promenade. There are now efforts to rehabilitate these existing facilities as well.