

Managing Congestion in the 21st Century: It's Not Your Parents' Transportation System

Have you been stuck in traffic and wish you'd known ahead of time to take a different route? Have you ever been tempted to run a red light because *you* are sitting there stopped, while there is no traffic on the other road...the one with the green light? Would you like to have your own private lane and be able to zoom past everyone else stuck in traffic?

All of these scenarios highlight ways in which intelligent transportation systems (ITS) can help our roads run more smoothly and efficiently. ITS technologies use computing, sensing, and communications technologies to reduce traffic congestion, and improve efficiency, safety, and security of roadways and transit services.

Some types of ITS, such as sensors that trigger stoplights, are already in use in the Treasure Valley. Others, such as real-time adjustment of traffic signals to meet travel conditions, improved distribution of information to travelers, and different types of toll systems on roads, are being used elsewhere or are in the experimental phases.

In times of tight revenues, rising costs, and concerns about the feasibility of widening roads, it is even more important to make the most of existing roads and services. ITS provides cost-effective ways to reduce congestion by making our current transportation system more efficient. Although not fully implemented here, we do know that ITS can help solve traffic congestion in ways not thought of before. This is not your parents' transportation system.

Intelligent Transportation Systems in Treasure Valley Roads and Transit

The hub for the ITS currently in place in the Treasure Valley is the Transportation Management Center, operated by the Ada County Highway District (ACHD). The information at this center is shared by a number of other agencies, including emergency responders. Some of the existing ITS applications in the Treasure Valley, mainly in Ada County, include closed-circuit television cameras used to monitor key roadways and intersections, 290 signalized intersections (intersections with traffic lights) under central system control, and 380 signalized intersections that allow for signal preemption for emergency vehicles. (There are a total of 400 signalized intersections in Ada County.)

Idaho is part of a nationwide “511 travel information system.” This system is based on an easy-to-remember 3-digit telephone number that provides current information about travel conditions, allowing travelers to make better choices – when to travel, how to travel, and which route to take. This information is also available online via a 511 Web site (<http://511.idaho.gov/>). Valley Regional Transit is currently working with Idaho Transportation Department to include transit information on the 511 Web site.

Reader boards provide immediate, real-time, pertinent information to travelers. Ada County has five of these dynamic message signs that can be used to inform travelers of accidents, air quality alerts, temporary lane closures, or Amber Alerts.



Intelligent transportation systems deployed by the Treasure Valley transit systems include automatic vehicle locator (AVL) technology, which enables tracking of buses. While not yet in use, this technology, combined with fixed bus stops, could make it possible to provide real-time bus information at the stops or directly to travelers via cell phones.

A similar system is in place in Portland, Oregon, where “TransitTracker” uses global positioning technology to track how far a bus is from a stop. Every bus in Portland is equipped with a transmitter that allows continuous satellite tracking with an accuracy of about 30 feet. This real-time information is then made available to riders on the street via electronic displays installed in bus shelters and light rail stations, online at trimet.org, and over the phone.



Electronic information sign at a bus stop

Transit systems are already implementing ITS and finding new ways to relay information to travelers. In addition to the system-wide enhancements, such as providing transit information on the 511 Web site or via electronic bus stop signs, there are possibilities through individual technologies, for example using cell phones to access information about bus routes and times.

Implementation and Policy Options

Intelligent transportation system enhancements could help maximize use of existing roads and transit services. Existing surveillance and detection technologies, such as real-time cameras, could be expanded to further travel and congestion management by adding, for example, lane control signs. These would allow for temporary closure of lanes or adjustment of speed limits based on traffic information and/or current conditions.

These technologies would enable congestion management through “ramp metering,” which uses traffic signals at freeway on-ramps to slow the rate of vehicles entering the freeway to control traffic flow on I-84. Lane control signs could also be used to designate high occupancy vehicle (HOV) lanes at peak travel times. ITS could also be applied to let drivers pay a toll to use certain lanes during rush hour.



Design concept for lane control signs

The Future

Future transportation investments should include funding for ITS implementation. Some broad categories of ITS – some of which the Treasure Valley already has in place, but that could be enhanced – include:

- Traffic signal control system
- Freeway management system
- Transit management system
- Incident management system
- Regional traveler information system
- Emissions mitigation
- Emergency management systems
- Electronic payment systems
- Commercial vehicle operations
- Parking management

Through investing in ITS, we can improve traffic congestion without necessarily having to build or widen roads. If we can manage traffic better using the same roads, maybe it is our parents' transportation system after all...only smarter.