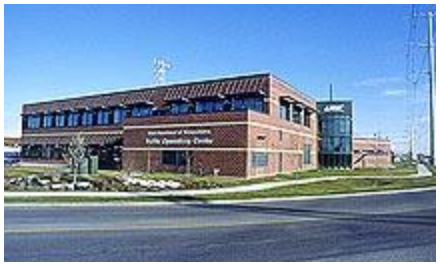
All's Quiet on the Wasatch Front: Technology Keeps Traffic Moving

by Melanie Buck

The Utah Department of Transportation (UDOT) recently launched CommuterLink, an intelligent transportation system of electronic traffic equipment, computers, and communication systems, to make traveling along the Wasatch Front safer and more efficient. The Wasatch Front is Utah's urban corridor on the western side of the Wasatch Mountain Range.



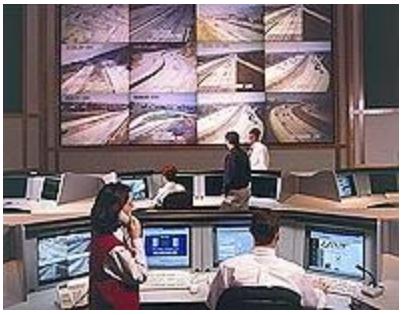
All of the real-time information gathered by CommuterLink is brought together at UDOT's Traffic Operations Center in west Salt Lake City.

CommuterLink became operational April 27, 1999, with the grand opening of UDOT's new traffic operations center (TOC) in Salt Lake City. The TOC is the "nerve center" of CommuterLink and houses all the computer and communication systems that provide instant data on road and traffic conditions. At the grand opening, Gov. Michael Leavitt, Federal Highway Administrator Kenneth Wykle, Utah Transit Authority (UTA) General Manager John Inglish, and UDOT Director Thomas Warne unveiled the CommuterLink name and logo.

"CommuterLink is a cost-effective and efficient solution to help relieve congestion on Utah's roads and highways," said Warne. According to the U.S. Department of Transportation, congestion on roads and highways has increased by nearly 30 percent in the past decade and is estimated to increase by another 50 percent within the next 10 years. On surface streets alone, traffic signal stops result in more than 20 million hours of delay annually and cost area motorists $100 million in lost time.

"CommuterLink will be a positive resource for transportation users because it will help traffic flow more smoothly and provide quicker roadside assistance in the event of an accident or bad weather," Warne said. "While CommuterLink will not solve all our traffic problems or eliminate the need to build new roads, it will help save lives, time, money, and frustration."

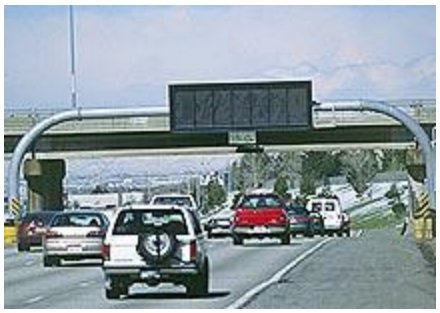
Now, the TOC is operational weekdays from 5 a.m. to 11 p.m. with operators on call for after-hour emergencies. When the TOC is fully operational in the fall of 1999, trained staff members from UDOT and the Department of Public Safety will operate the center 24 hours a day, seven days a week. UTA bus and rail dispatch centers will also be connected to the system, giving UTA personnel access to important real-time traffic information.



The heart of the TOC is the control room. In this room, traffic engineers, operators, and dispatchers monitor road conditions using a variety of tools.

CommuterLink operators use closed-circuit television (CCTV) cameras, traffic and weather sensors, electronic variable message signs (VMS), traffic signals, and ramp meters to monitor and manage traffic flow on streets and freeways. By 2001, the system will cover more than 135 kilometers of freeway and will include more than 480 kilometers of fiber-optic cables, 550 traffic signals, 150 CCTV cameras (spaced approximately every kilometer), and 57 VMS.

Traffic sensors provide operators with information on traffic volume, speed, and congestion. Sensors are spaced approximately every kilometer along the freeway to accurately measure traffic flow and to quickly isolate problem areas. For example, in the TOC, a color-coded map connected to the sensors will provide a visual representation of traffic speeds. If speeds on I-15 register slower than normal, this portion of the map will turn red and alert the operators to a problem. Such real-time information allows operators to respond immediately to any problem.



Variable message signs are one of a variety of technologies available to help CommuterLink operators manage traffic flow. To maximize the effectiveness of the variable message

Ramp metering, using sensors and traffic signals at freeway entrances, manages how many and how quickly cars can enter the freeway. When traffic is heavy, ramp meters allow fewer cars onto the freeway, avoiding further congestion. Ramp metering typically results in a 30-percent reduction in crash rates and a 15-percent to 30-percent increase in freeway speeds during peak hours. There are currently three ramp meters in Davis County, and an additional 22 meters will be operational throughout the Wasatch Front by 2001.

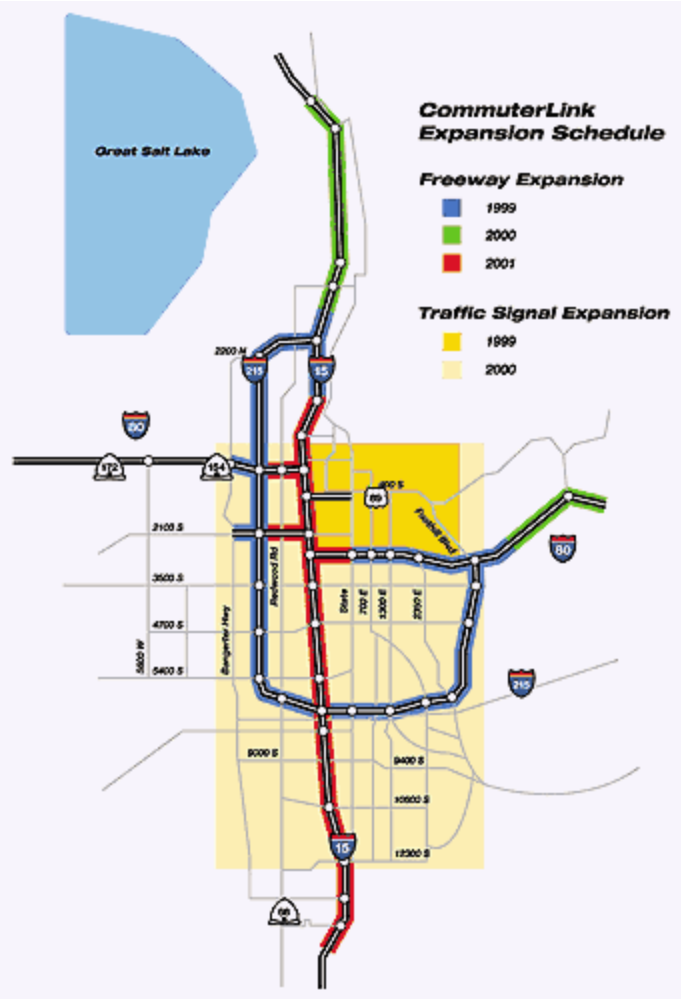
Using data from traffic sensors, TOC operators will be able to adjust the timing of 550 traffic signals in the Salt Lake Valley to accommodate the traffic demand and to reduce stops and delays at intersections.

CommuterLink includes weather recording stations and pavement-icing sensors in order to alert motorists to snow-packed and icy conditions. The information can also be used to improve winter road maintenance and snow removal operations.

signs only if there is a crash, road closure, or condition about which the motorists should be aware.

This network of technology and people work together to detect and determine the source of problems on the roadways and provide the appropriate responses to reduce delays at crash scenes and to restore traffic conditions to normal. Personnel in the UDOT TOC monitor and control CommuterLink and can dispatch highway patrol, UDOT incident management teams, and UDOT signal maintenance crews. In addition, motorists can report a traffic incident by dialing *11 on a cellular phone.

CommuterLink will make travel along the Wasatch Front safer. By reducing congestion, the system will reduce the number of crashes - currently approximately 3,500 freeway crashes each year. Nevertheless, when a crash occurs, the system will help emergency personnel identify, respond to, and clear the crash. These highly trained people also help stranded motorists and assist the highway patrol to manage traffic around crashes.



Based on the results of intelligent transportation systems in other cities, CommuterLink is expected to:

- Reduce intersection delays and traffic signal stops by 20 percent.
- Reduce freeway crashes by 20 percent.
- Increase peak-hour freeway speeds by 15 percent.
- Decrease freeway delays by 30 percent.

Other benefits include:

- Decreasing crash response time.
- Improving the environment by reducing vehicular air pollution.
- Enhancing the public transit system.

CommuterLink provides commuters with timely and accessible information at home, at work, and on the road. As information is received at the TOC, travelers are informed of problems via radio, television, the Internet, and VMS along the roadways.

The cooperation of seven public agencies made possible the funding and construction of CommuterLink. Partnering agencies include: UDOT, Salt Lake City, Salt Lake County, Federal Highway Administration, Utah Transit Authority, Wasatch Front Regional Council, and the Department of Public Safety.

The total cost to implement the initial phase of CommuterLink was $70 million - $17 million in federal- aid funds, $52 million in state funds, and $1 million in local funds. This TOC will be linked with two traffic control centers (TCCs) in the Salt Lake City area - TCCs run by the city and the county - making it possible to integrate freeway management at the UDOT TOC with the control of traffic signals on other streets by the TCCs.

Through a partnership with the Georgia DOT, UDOT saved approximately $7 million by sharing traffic management software and technical expertise. The Georgia DOT developed the software in preparation for the 1996 Centennial Olympic Games in Atlanta, and the Georgia DOT continues to use the software to manage traffic. Also, the UDOT TOC was built using design-build, an innovative contracting technique, which helped to shorten the development and construction time.

One of the greatest advantages of CommuterLink is its ability to expand and incorporate new technologies. The system is designed to meet today's needs, but it is flexible enough to meet the challenges of the future.

In the future, CommuterLink will extend its area of coverage; will add a telephone hotline that will give callers updates on road conditions and detailed messages about specific incidents; and will incorporate UTA buses and light rail, providing real-time transit schedules.

For more information, please call the UDOT TOC at (801) 887-3710 or visit the CommuterLink Web site at www.utahcommuterlink.com.

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