

**Addendum to the National Renewable Energy Laboratory Environmental
Performance Report for 2010 (Annual Site Environmental Report per the
U.S. Department of Energy Order 231.1-1A Chg 2)**

Traffic Mitigation Action Plan Update

November 2011

Traffic Mitigation Action Plan 2010 Update

Traffic Management

A Mitigation Action Plan (MAP), finalized in May 2008, was developed to address potential environmental impacts from changes in traffic at NREL and to support a Finding of No Significant Impact for several projects at the laboratory, including the new Research Support Facility (RSF). The MAP specifies the methods for implementing mitigation measures to ensure that the impacts from the proposed action are rendered not significant. The MAP requires that *“Upon occupation of the RSF, DOE and NREL will monitor traffic flow to and from the STM site two times per year at a minimum to confirm that either the 522 vehicle-trips per hour during peak rush hour or the 387 vehicle-trips per hour (whichever is applicable at the time of monitoring) criterion is not exceeded.”* The MAP also states that *“A report on the implementation and effectiveness of the STM traffic mitigation measures will be published in the NREL Annual Site Environmental Report.”*

In addition to traffic monitoring, the MAP identified the measures committed to by management as Traffic Demand Management (TDM) mitigating actions. These actions include alternative work schedules, expanded shuttle services, expanded carpools, and encouraging pedestrian and bike traffic. The near term TDM commitments completed in 2010 are described below. Preliminary traffic monitoring began in June 2010 and continued through the end of the year. The results of the initial traffic monitoring are described below. As required, a final report on effectiveness of the mitigation measures will be included in the next annual report.

Mitigating Actions Update

In 2010, previously implemented mitigation measures including transit subsidies, telecommuting, flextime and dedicated staff as the Transportation Program Coordinator, were continued. In addition, several new mitigation measures were implemented, including new shuttle routes to regional public transit hubs, vanpool subsidies, and new on-site parking and maintenance stations for bicycles, among others. Results from these efforts are reported below.

Alternative modes of commuting

Services continued from 2009

- Eco Passes are provided to employees to use the Regional Transportation District (RTD) public transportation system – unlimited RTD regional, express, local, light rail, and call-n-Ride services.
- Alternative-fuel shuttle vehicles that reduce miles traveled at STM, Golden Hill and Denver West sites in Golden, CO

New services implemented in 2010

- New shuttle routes that provide connections between STM, Golden Hill and Denver West sites in Golden, CO and two regional RTD transit stations in Lakewood, CO and Wheat Ridge, CO and a major RTD bus stop (for buses from Boulder, CO).
- Incentive parking for vanpools and carpools at STM, Golden Hill and Denver West sites.
- Vanpool subsidies for participants in formal organized vanpools.
- New bike racks and a bicycle repair and maintenance station at the STM site. New bike racks on shuttle vehicles that permit staff to take their bikes with them when they commute or move between buildings.
- Internal RideShare Connections are available on the NREL network and allow staff to post and search listings for potential carpool and vanpool partners within NREL.
- Literature kiosks in key building locations that provide shuttle and RTD schedules, bicycle maps, and telecommuting information.
- Coordinated and hosted information sharing events for safe bicycling, rideshare (carpool and vanpool) and RTD services.

Flexible workplace practices

Conferencing by video, telephone, and the internet as well as alternative work schedules(AWS) provide flexibility in how people work—saving time, energy, and money. An AWS policy allows employees to work varying schedules (with management approval), including four-day workweeks—reducing the miles driven by employees to and from the laboratory.

Telecommuting

NREL initiated a telecommuting pilot program to test feasibility and build support for the program in the fall of 2009. The pilot was conducted with participation from 12 groups and over 492 employees of various different job classifications representing approximately 30 percent of the laboratory. Pilot program participants and their supervisors were surveyed at the conclusion of the project and lessons learned from the pilot were used to fine tune the formal program and develop a laboratory level procedure. The program is scheduled to open lab-wide in the first quarter of 2011. There are many benefits in telecommuting including:

- High Performing Workforce. Higher morale and commitment, improved recruitment and retention of global talent
- Sustainability. Reduced CO₂, energy use, waste generation, facility size, parking requirements, traffic impact on-and off- site
- Economics. Reduce employee commuting costs (fuel and vehicle maintenance)
- Supports work-life balance.

Teleconferencing

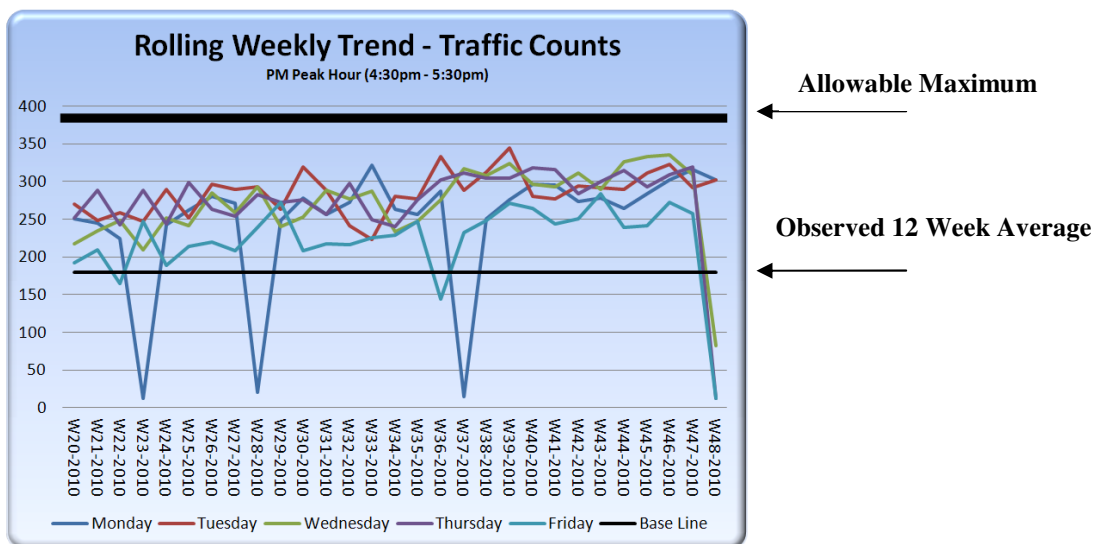
NREL is developing a campaign and training program to promote and encourage use of teleconferencing and videoconferencing for meetings. The purpose for this would be to help decrease local vehicle trips and decrease air and ground travel. The program is anticipated to begin in early 2011.

Traffic Metrics

In June 2010 staff began gradually moving to the STM from other sites (Denver West and Golden Hill) to occupy the Research Support Facility. At that time, solar powered radar traffic recorders were installed at the east (main) entrance to the STM site. The recorders have been continually recording traffic volumes coming to and leaving the laboratory and staff has been monitoring the key peak hour volumes to ensure compliance with the MAP threshold. The preliminary data indicate that the time period during which there is the greatest impact on traffic is between 4:30 and 5:30 p.m., designated the PM Peak Hour. Traffic counts for this time period were extracted from the complete data set for the recording period and compared against the allowable maximum.

Figure 1 shows the data set of traffic counts for each week day during the last 12 weeks of 2010. The allowable threshold and the average traffic flow volumes are indicated on the figure.

Figure 1. Traffic Counts by Day of the Week, Vehicle Trips in PM Peak Hour



The applicable traffic volume threshold identified in the MAP is 387 vehicle trips in the PM Peak Hour (from 4:30 PM to 5:30 PM) for the unimproved intersection. This threshold identifies the acceptable number of vehicle trips NREL can contribute to the unimproved intersection of Denver West Parkway and Denver West Marriott Boulevard without causing significant degradation to flow. In 2010, PM Peak Hour traffic volume averages stayed below the MAP threshold.

- PM Peak Hour **Average** (average for last 12 weeks of 2010) = **275 vehicle trips**
- PM Peak Hour **Maximum** (over last 12 weeks of 2010) = **358 vehicle trips**

A summary of the PM peak hour volumes for each weekday is presented in Table 1.

Table 1. Summary of PM Peak Traffic Flows, Vehicle Trips in PM Peak Hour

Statistics for Total PM Peak Hour (4:30pm - 5:30pm) - Past 12 Weeks*						
	Mon.	Tue.	Wed.	Thu.	Fri.	Weekday
Minimum	265.0	277.0	82.0	13.0	12.0	12.0
Average	291.6	300.7	292.0	269.1	222.0	275.1
Maximum	316.0	327.0	340.0	358.0	301.0	358.0
* W41-2010 through W52-2010						

Additionally, capacity improvements (and additional right-turn lane) on Denver West Parkway at Denver West Marriott Boulevard are planned for the near future. The planned capacity improvement will increase the acceptable peak hour threshold identified in the MAP from 387 to 522 vehicles in the PM Peak Hour.