Climate Change and Energy Planning for MPOs

A five-part webinar series to build MPO capacity for energy and climate change planning
Please add to the Climate Change & Energy webinar discussion by sharing your insights, observations, and recommendations!

Please send questions/comments via the Webinar “Chat Box” (at any time during the webinar).

Or, you can email them, after the webinar, to: batac@pbworld.com

We will use your input during the webinar and afterwards, in preparing the final report for U.S. DOT on this AMPO project.
5-Part Webinar Series on Climate Change and Energy (CC&E) Planning

1. The Context for CC&E Planning (Nov 29, 2011)
2. CC&E Partners and Collaboration (Jan 10, 2012)
3. CC&E Communications (Mar 6, 2012)
4. Linking CC&E Solutions to Other Goals (May 1, 2012)
5. Effective CC&E Implementation – Traffic Operations/Management (June 26, 2012)

Goal: To build MPO capacity for CC&E planning – and identify common MPO concerns, needs, and opportunities

Sponsored by: FHWA
Performed by: AMPO in partnership with Parsons Brinckerhoff
AICP credits: Webinar #1-4 (Webinar #5 Pending)
Steering Committee

Charlie Howard, Puget Sound (WA) Regional Council
Todd Ashby, Des Moines (IA) Area Metropolitan Planning Organization
Rich Perrin, Genesee (NY) Transportation Council
Cynthia Copeland, Strafford (NH) Regional Planning Commission
Jacob Snow, formerly with RTC of Southern Nevada (NV)
Walter Brooks and Jeffrey Roesel, New Orleans (LA) Regional Planning Council
Ron Kirby, Metropolitan Washington (DC) Council of Governments
Andrea Riner, formerly with Lane (OR) Council of Governments
Ann Flemer, San Francisco Bay Area (CA) Metropolitan Transportation Commission

Sponsor: Diane Turchetta, FHWA

Project Planning: AMPO: DeLania Hardy and Rich Denbow
Parsons Brinckerhoff: Cindy Burbank, Tara Weidner, Gary McVoy, and Tiffany Batac
Climate Change and Energy Planning for MPOs

Webinar #5
Effective Implementation of Traffic Operations and Management
Overview

- Framing Discussion
  - Gary McVoy, Parsons Brinckerhoff
    - Why MPOs?
    - Why Operations?
    - What to do about emissions?
    - How to adapt?

- MPO guests:
  - North Central Texas COG, Natalie Bettger
  - Genesee Transportation Council, Rich Perrin
  - RTC of Southern Nevada, Brian Hoeft

- Audience Q&A
U.S. Recent Temperature Changes

Annual Mean Temperature Anomalies, 1901-2005

Source: EPA
U.S. Recent Precipitation Changes

Annual Precipitation Trends, 1901-2005

Change in precipitation (% per century):

Source: EPA
Tornados – link unclear, but…

**U.S. Annual Tornado Trends**

- 2008 preliminary count includes duplicate reports for some tornadoes.
- Actual counts (thru Sep and prior years) have duplicate reports removed.

![Tornado Activity in the United States](image)
Increased Extreme Weather Events

Pew Research Center
Interactive Extreme Weather Events Map
www.c2es.org/science-impacts/extreme-weather-events-map
Unexpected consequences

Size of U.S. Wildfires, 1983 to 2008

Large-scale electricity disruptions in the United States and southern Canada have increased significantly since the early 1990s, even as changes in electric power generation have been modest. Most of the increase can be attributed to weather-related outages, which affect 180,000 customers on average, as compared to about 50,000 customers for non-weather incidents (excluding the massive August 2003 blackout). Disruptions in the chart were tabulated by hand from annual reports issued by the North American Electric Reliability Corporation and include outages and public appeals to reduce electricity consumption. Note that utilities are only required to report large-scale disruptions, for example those affecting at least 50,000 customers for at least 1 hour or a loss of at least 300 MW for at least 15 minutes. This chart does not include outages in local distribution networks, which are much more common but affect fewer people. Note that the 2010 data is preliminary and does not include public appeals.

Why MPOs?

Where do emissions come from in space
GHG Sources – by Country

Comparison: Annual* & Cumulative** CO₂ Emissions

** Cumulative Emissions from 1850-2000, CAIT WRI
Transportation’s Share of U.S. GHG

Source: U.S. DOT Report to Congress, 2010

- Light Duty Vehicles: 58%
- Aircraft: 12%
- Freight Trucks: 19%
- Buses: 0.6%
- Motorcycles: 0.1%
- Residential: 25%
- Commercial: 0.2%
- Industry: 19%
- Electric Power Industry: 34%
- Rail: 3%
- Pipelines: 1%
- Marine: 5%
- Lubricants: 1%
Transportation
Urban vs. Rural

Two-thirds of VMT occurs in urban areas

2010 VMT by Functional Class

Source: USDOT, FHWA, Highway Statistics Summary.
Why Operations?

Where do emissions come from in the transportation system?
Minimal US Highway expansion
Past & Future

Lane miles increasing by < 1% per year

Source: USDOT, FHWA, Highway Statistics Summary.
Who can do what about emissions?

MPOs provide a unique role, including a forum to facilitate the role of others.
Potential array of transportation GHG mitigation strategies

1. Vehicle efficiency - PROMOTE
2. Low-carbon fuels - PROMOTE
3. VMT Reductions (including land use)
4. Vehicle/System Operations
5. Construction, Maintenance, Agency Operations
Traffic Operations: Strategies To Reduce GHG

Adaptation

Why MPO’s?

Route 5 between Scotia and Schenectady, New York, is overrun by floodwaters from Mohawk River.

Source: Reuters
Multi-Modal Transportation System
Diverse, Complex and Vital - comes together in MPO
MPOs Bring… Partnerships, Decisions, Funding

- Forum for strategies by multiple agencies
- Increase credibility of chosen strategies
- Leverage multiple funding sources

For example in New York….
Adaptation
Why Operations?
Maintenance/Operations – who else?

- Asset Management
- ETO (Emergency Transportation Operations)
- ITS (Intelligent Transportation System)
- 511 (Traveler Information System)
- Adaptive Management / Partnerships....
MPO Preparations for Extreme Events

- **Mitigation actions**
  - Assess infrastructure most at risk, provide alt routes or re-design
  - Promote street design that reduces paved surfaces, increases urban tree canopy to decrease urban heat island effects

- **Adaptation Actions to address:**
  - Multi-day flooding
  - Water rationing, dust storms
  - Wildfires
  - Cooling Centers for extreme heat
  - Increased days with poor Air Quality Index
  - Energy outages
  - Rock slides
  - Increased maintenance - clearing of storm debris, cleaning storm drains
  - Transit system operational impacts

- **Evacuation/Rerouting/Recovery Plans**
  - Public Communication
  - Clearinghouse for advance/during event communication
  - Event Coordination “Vision” and common goals
MPOs can bring…Synergies
The right thing for many reasons

Source: Michigan DOT
MPO Climate Strategies
-- multiple benefits --

**Congestion Management / Traffic Flow**
- ITS improvements such as…
  - Signal Timing
  - Transit Pre-emption
  - Traveler Information
  - Ramp Metering

- Bottleneck Reduction
- Incident management

**Freight**
- ITS improvements such as…
  - Pre-clearances at scale houses
  - Truck Stop Electrification

- Improved routing
- Alternative fuels / Diesel retrofits
- Freight logistics improvements
- Intermodal facilities
- Freight rail diversion

**Multimodal / Active / Sustainable Transportation**
Street Design policies that promote…
- Urban Tree Canopies
- Walkable neighborhoods
Resources

- “Extreme Weather, Climate change and the Risks we Face”
  Scientific American Three-part series (John Carey author, with Pew Center commission)

- Gulf Coast Adaptation Studies
  - Impacts and Adaptation Options in the Gulf Coast, June 2012
    by Hal Needman, David Brown, and Lynne Carter; (Pew Center)
  - FHWA Gulf Coast Adaptation Studies
    http://www.fhwa.dot.gov/environment/climate_change/adaptation/ongoing_and_current_research/gulf_coast_study/index.cfm

- ‘Carbon Footprint Estimation Tool (CFET)’ of construction/maintenance projects - Univ of MD, Virginia Tech (Dec 2010)
AUDIENCE POLLING QUESTION
Q 1: Does your agency provide a forum for multi-agency Emergency operations planning?

a) Yes, climate change is part of it
b) Yes, but climate change is not part of it
c) No, have not been able due to funding/time limitations
d) No, not interested
Transportation System Management And Operations Programs To Meet Climate Change Needs

Natalie Bettger
North Central Texas COG
TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS PROGRAMS TO MEET CLIMATE CHANGE NEEDS

Natalie Bettger
June 26, 2012

North Central Texas Council of Governments
Presentation Outline

Regional Overview

Transportation Systems Management and Operations (TSM&O) Projects

Project-Level Evaluation

Emergency Response to Extreme Weather
Transportation Department serves as the Metropolitan Planning Organization (MPO)

Executive Board Fiduciary Agent

Regional Transportation Council Policy Board
Dallas-Fort Worth Region

12 County MPA - 9 County Non-Attainment Area - 9,441 Square Miles
## Regional Statistics

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Population</td>
<td>6.6 million</td>
</tr>
<tr>
<td>Population in 2035</td>
<td>9.8 million</td>
</tr>
<tr>
<td>Current Employment</td>
<td>4.2 million</td>
</tr>
<tr>
<td><strong>Roadway Infrastructure</strong></td>
<td></td>
</tr>
<tr>
<td>Freeways / Tollways</td>
<td>800 centerline miles</td>
</tr>
<tr>
<td>Arterials</td>
<td>1,800 centerline miles</td>
</tr>
<tr>
<td>Light Rail</td>
<td>75 miles</td>
</tr>
<tr>
<td>Commuter Rail</td>
<td>35 miles</td>
</tr>
<tr>
<td>HOV / Managed Lanes</td>
<td>135 miles</td>
</tr>
<tr>
<td>Veloweb</td>
<td>644 miles</td>
</tr>
</tbody>
</table>
Regional Stakeholders

230 Cities
12 Counties
Two TxDOT Districts
Three Transit Agencies
One Toll Authority
Two Commercial Airports
Private Partners
NCTCOG TSM&O Projects

Operations and Management

Intelligent Transportation System Deployment
Freeway Incident Management / Photogrammetry Training
Mobility Assistance Patrols
Regional Traffic Signal Program
Center-to-Center Plug-In’s for Signals
Regional Fiber Network
Demand Management
Project-Level Evaluations
## Traffic Signal Implementation

<table>
<thead>
<tr>
<th>City Signal Program</th>
<th>Regional Signal Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Federal Funding or Local Funding</td>
<td>• Federal Funding</td>
</tr>
<tr>
<td>• Implemented by City</td>
<td>• Implemented by NCTCOG</td>
</tr>
<tr>
<td>• Any Arterial</td>
<td>• Regional Arterials</td>
</tr>
<tr>
<td>• Single Jurisdiction</td>
<td>• Multiple Jurisdictions</td>
</tr>
</tbody>
</table>
Regional Traffic Signal Retiming Program

- **Funding**
  - 80 Percent Federal
  - 20 Percent State / Local

- **Traffic Signals**
  - ~2300 Intersections

- **Implementation Partners**
  - 34 Cities; Two TxDOT Districts

- **Purpose**
  - Reduce vehicular emissions and improve mobility through traffic signal retiming.
Corridor Selection Process

Call for Corridors

Evaluation Criteria

Volume
Air Quality (NOX and VOC)
Signal Communications
Construction Schedule
Truck Percentage
Environmental Justice
Safety
Multi-Modal Operations
Multi-Jurisdictional Corridor

Approval by Project Review Committee
## Air Quality Benefit

<table>
<thead>
<tr>
<th></th>
<th>Regional Traffic Signal Retiming Program (Funded Through CMAQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Cost</strong></td>
<td>$4,000,000</td>
</tr>
<tr>
<td><strong>Total Signals</strong></td>
<td>~300 (Includes hardware upgrades)</td>
</tr>
<tr>
<td><strong>NOx</strong></td>
<td>443.82 Tons</td>
</tr>
<tr>
<td><strong>VOC</strong></td>
<td>1,267.93 Tons</td>
</tr>
<tr>
<td><strong>CO2</strong></td>
<td>186,629.52 Tons</td>
</tr>
<tr>
<td><strong>Emission Duration</strong></td>
<td>3 Years</td>
</tr>
</tbody>
</table>
## Proposed Selling of CO₂ Emission Credits For Traffic Signals

<table>
<thead>
<tr>
<th></th>
<th>Regional Traffic Signal Retiming Program (Funded Through CMAQ)</th>
<th>Additional Traffic Signal Retiming (Funded Through CO₂ Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Cost</strong></td>
<td>$4,000,000</td>
<td>$2,000,000</td>
</tr>
<tr>
<td><strong>Total Signals</strong></td>
<td>~300 (Includes hardware upgrades)</td>
<td>~300 (Retiming only)</td>
</tr>
<tr>
<td><strong>NOx</strong></td>
<td>443.82 Tons</td>
<td>295.88 Tons</td>
</tr>
<tr>
<td><strong>VOC</strong></td>
<td>1,267.93 Tons</td>
<td>845.29 Tons</td>
</tr>
<tr>
<td><strong>CO₂</strong></td>
<td>186,629.52 Tons</td>
<td>124,419.68 Tons</td>
</tr>
<tr>
<td><strong>Program Emission Benefits</strong></td>
<td>Region keeps NOx, VOC and CO₂ Credits</td>
<td>Region keeps NOx, VOC Credits. Region sells CO₂ Credits</td>
</tr>
<tr>
<td><strong>Emission Credits Duration</strong></td>
<td>3 Years</td>
<td>3 Years</td>
</tr>
</tbody>
</table>
Demand Management

Employer Trip Reduction Program

Vanpool Program

TryParkingIt.com Tracks Commute Trips

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Miles Reduced</th>
<th>VOC (lbs)</th>
<th>NOx (lbs)</th>
<th>CO (lbs)</th>
<th>PM (lbs)</th>
<th>CO2 (lbs)</th>
<th>SO2 (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobiles [gas]</td>
<td>269,542</td>
<td>335</td>
<td>292</td>
<td>4,474</td>
<td>7</td>
<td>218,906</td>
<td>4</td>
</tr>
<tr>
<td>Automobiles [diesel]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SUV/Truck/Van [gas]</td>
<td>114,286</td>
<td>179</td>
<td>222</td>
<td>2,640</td>
<td>3</td>
<td>129,457</td>
<td>2</td>
</tr>
<tr>
<td>SUV/Truck/Van [diesel]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>169</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>66</td>
<td>0</td>
</tr>
<tr>
<td>Hybrid Vehicle</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>383,997</strong></td>
<td><strong>515</strong></td>
<td><strong>515</strong></td>
<td><strong>7,118</strong></td>
<td><strong>11</strong></td>
<td><strong>348,429</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>
Emergency Response to Extreme Weather
Regional Response to Extreme Weather Conditions

Public Works Emergency Response Team
Assistance Provided After April 3 Tornadoes

Regional Resource Inventory Public Works Assets, Resources and Capabilities
Communicate on the Regional Emergency Management listserv

Coordinating Responses to Requests for Assistance
Own Jurisdiction First

Mutual Aid/SB11
Elected Official Support for Deployment

Training Damage Assessment and NIMS
NCTCOG’s Current Practice for GHG

Developed Methodologies to Calculate Benefits

Track on a Project-by-Project Basis

Incorporated CO$_2$ Emissions into Air Quality Model
NCTCOG’s Future Approach GHG

Policy Board Committed to Expanding Efforts to Include Multi-pollutant Benefits when Making Funding Decisions

Continue to Look for Innovative Funding Sources, Where Credits are Not Sold
Questions
AUDIENCE POLLING QUESTION
Q 2: Which of the following GHG mitigation operations programs is your agency involved in?

a) Improve traffic flow (ramp metering, incident management)
b) Signal timing, transit pre-emption
c) Traveler information
d) Speed limit enforcement
e) Pedestrian/bike access & safety programs
Addressing Climate Change through MPO Transportation System Management & Operations Planning

Rich Perrin
Genesee Transportation Council
Addressing Climate Change through MPO Transportation System Management & Operations Planning

FHWA and AMPO Climate Change & Energy Planning for MPOs
June 26, 2012
Richard Perrin, AICP
GENESEE TRANSPORTATION COUNCIL
Genesee-Finger Lakes Region
GTC TSMO Planning

- 1991 – Expressway Committee is formed
- 1996 – Expressway Committee becomes Transportation Management Committee (TMC)
- 1996 – First regional TSMO planning activity (*IMAGE Report*) is completed
- 2002 – Regional Traffic Operations Center is opened
- 2003 – First GTC ITS planning activity (*Port of Rochester ITS Case Study*) is completed

GENESEE TRANSPORTATION COUNCIL
GTC TSMO Planning

- 2006 – First TSMO coordination study is completed; GTC becomes TMC facilitator
- 2007 – NYS Route 96 Traffic Signal Coordination Study is completed
- 2007 – LRTP 2027 classifies recommendations by category rather than mode
- 2010 – GTC establishes dedicated TSMO position
GTC TSMO Planning

- 2011 – *ITS Strategic Plan* completed
- 2011 – *LRTP 2035* expands emphasis on TSMO
- 2011 – TSMO guide is developed
- 2011 – Development of RCTO begins
- 2011 – Diversion route planning initiative begins

GENESEE TRANSPORTATION COUNCIL
Multiple Benefits of TSMO

- Advances important regional issues such as:
  - Improving safety
  - Preserving the system
  - Increasing mobility
  - Reducing delay
  - Addressing climate change
Primary TSMO Initiatives

1. Coordination
   ✓ Facilitate interagency coordination and collaboration among transportation agencies, first responders, and emergency management organizations

2. Technology
   ✓ Utilize information and communication technologies via ITS and other instrumentation

3. Demand
   ✓ Provide users with better and additional information to manage demand on the system
Primary TSMO Initiatives

1. Coordination
   ✓ Facilitate interagency coordination and collaboration among transportation agencies, first responders, and emergency management organizations

   Examples:
   ➢ Bi-monthly Transportation Management Committee (TMC) meetings
   ➢ Regional Concept of Transportation Operations (RCTO)
   ➢ Diversion Route Planning Initiative
Primary TSMO Initiatives

2. Technology
   ✓ Utilize information and communication technologies via ITS and other instrumentation

Examples:
   ➢ Identify agency capabilities – *what*, not *how*
   ➢ Diagnosis to Prognosis
   ➢ Role of ITS in “Complete Streets”
Primary TSMO Initiatives

3. Demand
   ✓ Provide users with better and additional information to manage demand on the system

Examples:
   ➢ Offer accurate and up-to-date travel information
   ➢ Promote alternative travel options
   ➢ Improve wayfinding for destinations and parking
Mutual Benefits

- Raises profile of both TSMO and climate change
  - Mainstreams TSMO as a viable alternative and cost-effectively addresses climate change using the existing system

- Provides opportunities to gain additional champions
  - Appeals to both cash-strapped transportation agencies and environmental advocates

- Broadens availability of resources
  - May expand access to funding if benefits can be demonstrated
GENESEE TRANSPORTATION COUNCIL
50 W. Main St., Suite 8112
Rochester, NY 14614
www.gtcmpo.org
AUDIENCE POLLING QUESTION
Q 3: What would help your agency facilitate operational planning for climate change and energy in your region?

a) More funding
b) Mandate/reprioritization
c) Tools/best practices assistance
d) Other
Multimodal Traffic Operations and Management in Las Vegas

Brian Hoeft
RTC of Southern Nevada
AMPO Climate Change and Energy Planning Webinar Series

Multimodal Traffic Operations and Management in Las Vegas

REGIONAL TRANSPORTATION COMMISSION
Quicker. Cleaner. Greener.
Climate Change challenges in Southern Nevada

Lake Powell Annual Inflows

Source:

SOUTHERN NEVADA WATER AUTHORITY
Climate Change challenges in Southern Nevada (cont.)
I-15 S/B CLOSED
AT STATELINE
USE ALT ROUTE
Renewable Energy efforts
Regional Collaboration and Multimodal approach
RTC’s new downtown transit center

Gold LEED Certification
WATER EFFICIENT SITE

Gold LEED Certification
ENERGY & ATMOSPHERE

Gold LEED Certification
ENERGY EFFICIENCY MEASURES

Gold LEED Certification
RENEWABLE ENERGY MEASURES

Gold LEED Certification
COMBINED EFFECT

- Energy Efficiency Measures + Renewable Energy Measures = $165,500 incremental costs

- Total Savings = $29,992

- Payback = 5.5 years
RTC Bike Center  Mixing Modes!
Electric Bike (E-Bike) Program
The Role of Transportation Systems Management & Operations in Supporting Livability and Sustainability

A PRIMER
RTC / FAST  current daily activities

WHAT IS TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS?

Transportation systems M&O refers to multimodal transportation strategies to maximize the efficiency, safety, and utility of existing and planned transportation infrastructure. M&O strategies encompass many activities, such as:

- Traffic incident management.
- Traffic signal coordination.
- Transit signal priority (TSP) and bus rapid transit (BRT).
- Freight management.
- Work zone management.
- Special event management.
- Road weather management.
- Congestion pricing.
- Managed lanes.
- Ridesharing and demand management programs.
- Parking management.
- Electronic toll collection and transit smart cards.
- Traveler information systems.
Fiery tractor-trailer crash on I-15 creates traffic crisis

BY ADRIENNE PACKER
LAS VEGAS REVIEW-JOURNAL
New premium transit service emphasizes renewable energy, additional modes, and traffic operations technology.
BHX & HDX
Opened September 18, 2011

Ridership Increase 98.8%
Feb. 2011-Feb 2012

HDX = 27 minutes
BHX = 40 minutes

Previous route was 60 minutes
From Sunset To Downtown Las Vegas
The emerging center of the transportation system universe
Seeing is believing
If you measure it, you can manage it
Safe and efficient incident clearance
How to quantify impact of incidents on freeway performance
How to quantify impact of incidents on freeway performance (cont.)

Crashes that block half or more freeway lanes cause queues to grow at a rate of **150** to **200** feet per minute.  
*RTC-FAST Analysis, 2012*
How to quantify impact of incidents on freeway performance (cont.)

When no tow truck is needed, the average time to clear lanes after a NHP trooper arrives is **less than three minutes.**
AMPO Climate Change and Energy Planning Webinar Series

Multimodal Traffic Operations and Management in Las Vegas
Audience Discussion

Please use the webinar question tool to submit questions – and also to provide your own insights, information and suggestions.
CC& E Planning for MPOs
Findings Workshop & Report

Review five webinars:
1-Context, 2-Partners, 3-Communications, 4-Co-benefits, 5-Implementation

- Issues, unique MPO role, needs
- MPO role in CC&E Mitigation and Adaptation activities
- MPO case study examples of best practices

Action Plan:
- For individual MPOs and MPOs collectively
- How can FHWA, AMPO, others assist MPO efforts to inform and influence decisions on mitigation and adaptation

Workshop at 2012 AMPO Annual Conference: Moving Americas Metros
Thursday, September 13, 10:50 am – 12:20 pm
Sarasota Springs, NY, (Conference registration at: www.ampo.org )
Thank you!

Webinar slides available at:  www.ampo.org

Contacts for further info:
AMPO:  Rich Denbow  rdenbow@ampo.org
FHWA:  Diane Turchetta  diane.turchetta@dot.gov
PB:  Tara Weidner  weidner@pbworld.com;  Tiffany Batac  batac@pbworld.com
   Gary McVoy  mcvoy@pbworld.com
   Cindy Burbank  burbank@pbworld.com