Contra-flow Operations
What is Contra-flow?
Bay Bridge

Bridge Layout - Normal Operation

- **Two Bridge Spans**
  - North Bridge: 3 Lanes Westbound
  - South Bridge: 2 Lanes Eastbound
  - Single Lane Capacity 1,500 VPH
    - North Bridge Max 4,500 VPH
    - South Bridge Max 3,000 VPH
• **Contra-Flow**
  – Uses one of the Westbound Bridge lanes for Eastbound Movement
  – Provides a 3rd Eastbound Lane
  – **Not implemented during inclement weather**
Contra-flow Operation

- Increases Eastbound traffic throughput from 3,000 vph to 4,500 vph
- Implemented only during ideal weather conditions
  - No Rain
  - No Frozen Precipitation
  - Winds below 30 mph
  - No Fog
Contra-flow Operation

• **Maintenance of traffic consist of:**
  – Lane Signals
    • 28 North Bridge (Westbound)
    • 24 South Bridge (Eastbound)
    • Strobe on signals to indicate reverse traffic
  – Traffic barrels and cones to create tapers and directional lanes
  – Requires approximately 20-30 minutes for setup
  – Hourly Monitoring of volumes and travel & direction
Contra-flow - When?
Daytime Closures

- Closures due to construction, inspection and preventive maintenance repairs on EB Bridge – requires contraflow ops
- Monday thru Wednesday – 9:00 am to 2:30 pm
- Thursday – 9:00 am to 1:30 pm
- Friday – no lane closures permitted
Contra-flow Operations

Contra-flow Operation (Weekday):
- Maintain a minimum of 2 lanes in each direction
  - 5:00 am – 9:00 am – 3 lanes for Westbound Commuters
  - 9:00 am to 2:30 pm – Lane closures to support Maintenance/Projects/Lane Closures
  - 3:00 pm to 7:00 pm – 3 lanes eastbound for returning Commuter traffic
    - Contra-flow is based on traffic volumes
Contra-flow Operations

Typical Summer Commute Contra-flow times:

- Monday thru Wednesday – 3:00 pm to 7:00 pm
- Thursday – 2:00 pm to 8:00 pm
- Friday – 10:00 am to 10:00 pm
Contra-flow Operations

- Heavy WB return traffic could force us to discontinue contra-flow
- WB traffic given priority when delays hit Exit-39 (approx. 2 miles)
  - Route 18 parallels US 50
  - Traffic diverts off US 50 to Route 8 and 18 to bypass US 50 traffic backups
  - Route 8 and 18 becomes gridlocked and impacts Emergency Services
- When traffic delays reach Exit-39 – Contra-flow operation EB is discontinued
Why Contra-flow?
Contra-flow Operations

Contra-flow traffic volumes are monitored hourly and discontinued if:

- Traffic volumes drop below 900 VPH for the contraflow lane
- Weather conditions become unfavorable
- Eastbound hourly traffic volumes fall below 3,000 VPH
Wind Policy

Wind/Gust Levels:

- Phase I, Wind Warnings (30 to 39 mph)
  - notify and alert the public for awareness
- Phase II, Limited Wind Restrictions (40 to 49 mph)
  - restriction prohibiting empty trucks or other vehicles
- Phase III, Full Wind Restrictions (50 to 55 mph)
  - restriction requiring trucks to exceed 64,000 lbs.
- Phase IV, Traffic Hold (> 55 mph)
  - may require traffic hold

Duration

- Wind speeds and duration are now identified for consistent application

Authorization

- Requires Facility Administrator and/or Police Commander to approve prior to traffic hold phase
- Provides written authorization for the highest ranking on-site official to close during a sudden increase
Contra-flow Operation & Weather

• Safety is always 1st priority

• Contra-flow operations require consistent monitoring:
  – 4.3 miles of bridge with no shoulders
  – Constant monitoring for anything that restricts visibility
    • Oncoming traffic
    • Lane Signals
  – Subject to cross winds & erratic changes in wind speeds

• Bay Bridge Weather
  – Conditions over the Chesapeake can be turbulent
  – Conditions can vary from shore to shore
  – Conditions at sea level different at 185' above the bay
    • Winds stronger & more erratic
    • Visibility differences
    • Precipitation changes
    • Temperature differences
## Safety Enhancements

- MDTA has implemented and continues to investigate new technologies & processes
  - Lane Signal Improvements
  - Cameras
  - Wind Monitoring System
  - Bridge Weather Sensors
  - Remote Access
  - Uninterruptable Power Supply
  - Your Speed Is (Electronic Readout)
  - Congestion Ahead Flashers
  - Headlight Requirements
  - Curve warning signs and 40 mph speed limit signs
  - Do not tailgate sign at approach of EB bridge
  - Plaza pavement lane markings
  - NOAA (enhanced understanding of weather patterns and text alerts)
Contra-flow Operation (Summary)

- Safety is always 1st priority.
- Weather Restricted/Dependent
- Dependent on traffic volumes
- Reduced speed from 50 mph to 40 mph in contraflow lane
- Flashers/strobes used to denote two-way traffic
- Variable message signs are used to alert drivers prior to bridge
- Maintain volume of traffic in contraflow lane (reduce gaps)
- Lane signals visibility is critical
- Emergency vehicles lead traffic at the start; follow at the end
- VRT’s staged at each end to assist motorists
- Implemented only during ideal weather conditions
  - No rain
  - No frozen precipitation
  - No Precipitation of any type
  - Winds must be below 30 mph
  - No fog
Multi-Agency Coordination

• Extensive outreach with QAC and AACo agencies
  – Emergency Management
  – Maryland State Police
  – Sheriff Department
  – State Highway Administration (SHA)

• Traffic Plans Developed During Emergencies
  – Plans designed to reduce impact on Kent Island
    • Rt. 18
    • Rt. 8
  – Maintain emergency services during serious events
Questions?