

6.D.

**Jurisdiction and Agency Coordinating Committee
Northern Virginia Transportation Authority**

MEMORANDUM

TO: Christopher Zimmerman, Chairman
Northern Virginia Transportation Authority

Members
Northern Virginia Transportation Authority

FROM: Tom Biesiadny, Chairman
Jurisdiction and Agency Coordinating Committee
Northern Virginia Transportation Authority

SUBJECT: Update on I-95/395 HOT Lanes Project's Transit and TDM Study (Item 6.D.)

DATE: November 1, 2007

DRPT staff will attend the November 8, 2007, NVTA meeting to present key finding from the modeling and market research analysis done as part of the I-95/395 HOT Lanes Transit and TDM study. A refined alternative will also be presented. The final draft recommendations from the study will be presented in December 2007, and used as input for the MWCOG FY 2009-2014 TIP.

Cc: Members, NVTA Jurisdiction and Agency Committee
Members, NVTA Working Groups
Members, Council of Counsels

I-95/I-395 Transit/TDM Study

**Project Briefing
November 2007**

www.drpt.virginia.gov



- Recent Major Activities
- Key Findings from Market Research
- Key Findings from Travel Forecasting
- Next Steps

Recent Major Activities

- Conducted Market Research
- Modeled Tiered Transit/TDM Alternatives
- Initiated Park-and-Ride Needs Analysis

Key Findings from Market Research

Background

- Nearly 3,300 respondents across all of the targeted populations among I-95/I-395 corridor commuters
 - Single Occupancy Vehicle (28%)
 - Carpoolers including Sluggers (29%)
 - Vanpoolers (8%)
 - Transit Riders (33%)

Key Findings from Market Research

Attitudes towards HOT Lanes

- Awareness of HOT lanes is high. The lowest level of awareness is posted at 76% among SOV's. Nearly all sluggers (94%) are aware of the HOT lanes.
- Sluggers are especially likely (71%) to believe that HOT lanes will discourage drivers from picking up sluggers.
- However, most transit and HOV commuters say they would not change their commute in any way when the HOT lanes are open and functional.
 - 53% of SOV
 - 81% of Carpoolers
 - 82% of Sluggers
 - 95% of Vanpoolers
 - 91% of Bus Riders
 - 86% of Train Riders

Key Findings from Market Research

Interest in Using HOT Lanes

- Likelihood of using the HOT lanes is highest among commuters from Spotsylvania, Stafford and Prince William than farther north.
- Some SOV commuters (<30%) are willing to pay for the time savings, but the number drops significantly as the price increases.

Key Findings from Market Research

Preferences – Park-and-Ride

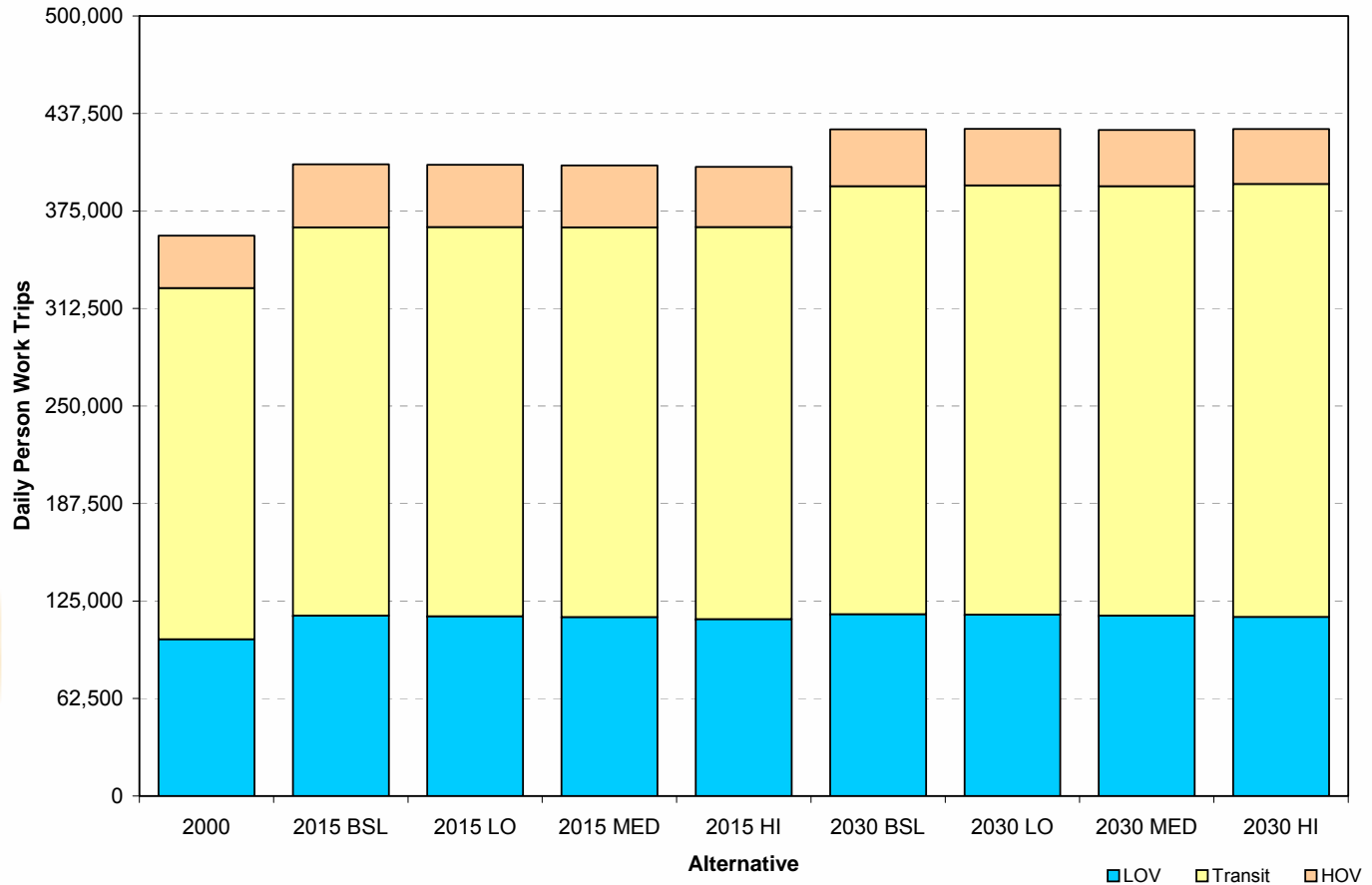
- 34% of SOVers say there is no park-and-ride lot located along their commute to catch express bus or there is a lot but it is usually full (12%). 24% say they don't know.
- Of those who do not have such a park-and-ride lot, 11% of SOVers say they would use a park-and-ride lot if one were available.

Key Findings from Travel Forecasting Background

- Tested Three Tiered Transit/TDM Alternatives:
 - **Low** - Approximately \$250 million
 - **Medium** - Approximately \$500 million
 - **High** - Unconstrained
- Targets represent “gross capital and operating costs” – funding would come from combination of HOT Lanes funding for transit/TDM and farebox revenues
- Baseline scenario consisted of Constrained Long Range Plan (CLRP) transit service and HOT lane highway networks

Key Findings from Travel Forecasting

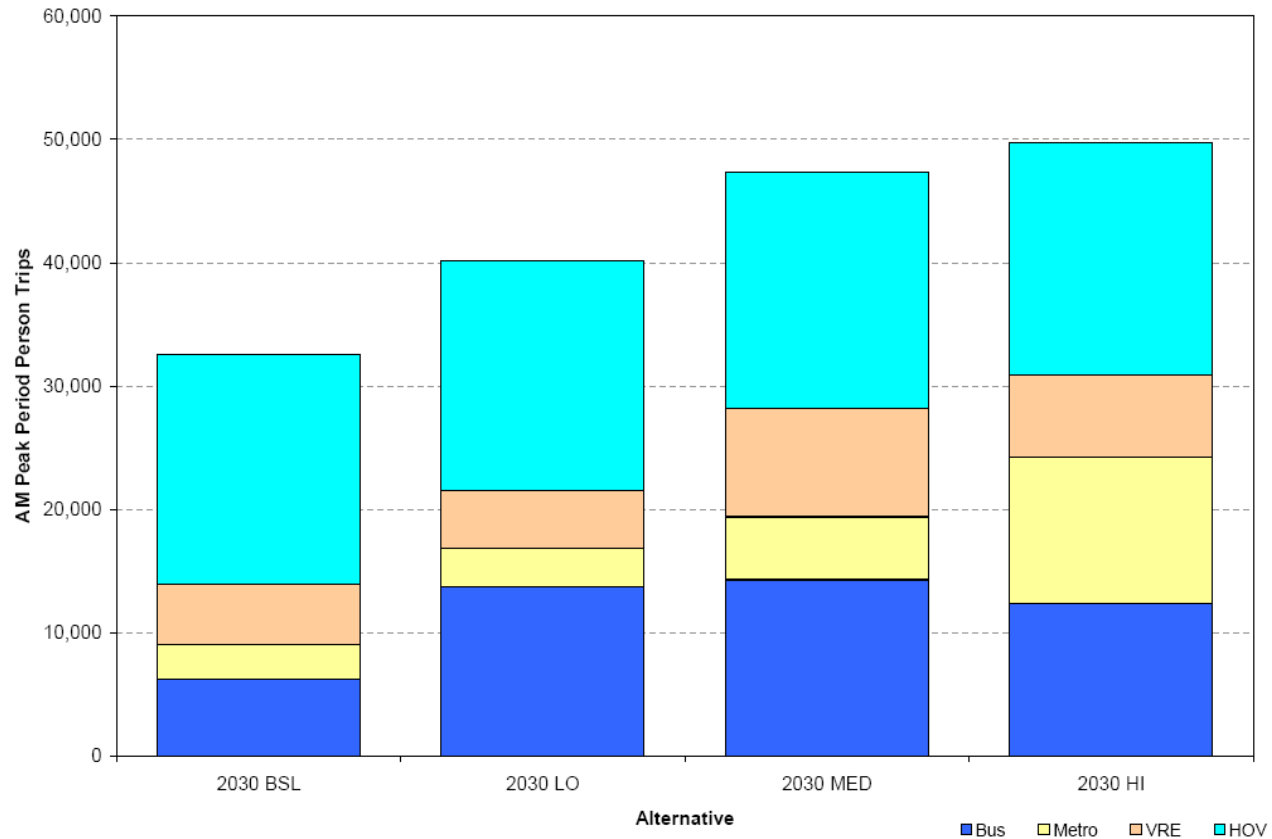
Corridor Mode Share to Core Preliminary Results



Transit share and ridership level grows to 2030 at small expense to HOV3+ and LOV, but not much difference among alternatives.

Key Findings from Travel Forecasting

Northbound Trips I-95 & Beltway Preliminary Results



Major difference among alternatives is in transit sub mode splits – Metro ridership gains in High Alternative come from VRE and bus.

Snapshot of Proposed Enhancements

at I-95 Cut-Line South of Springfield Area

Alternative	Bus	VRE	Metrorail
Existing	40/hour	14/day	---
CLRP	66/hour	14/day*	---
Low	82/hour	14/day** (+6 cars)	---
Medium	97/hour	20/day	---
High	98/hour	32/day	10/day***

* CLRP indicates a non-specific increase in service.

** Low alternative adds railcars but does not change number of trains.

*** Adds Metrorail service in the South.

Key Findings from Travel Forecasting

- CLRP Baseline Alternative has significant service additions and is already a very strong performer
- Most difference among tested alternatives was in the competition among transit modes
- HOT lanes generally did not adversely impact transit or carpool mode share versus today
- The transit/TDM alternatives maintain high mode share in the corridor even with significant increases of travel in the corridor
- Many of the new proposed transit routes show strong ridership

Refined Alternative

Enhancing and carrying forward strong performers and dropping elements that did not test well. Handout gives detail.

Kept or Enhanced	Dropped
<ul style="list-style-type: none">• Service modifications to existing bus service• Selected new services• BRT concept• Transit centers and park-and-ride expansion	<ul style="list-style-type: none">• Metrorail extension• New VRE stations• VRE improvements to operate more than 40 trains• Selected feeder shuttles and smaller-market long-distance buses

- **November**
 - Refined Alternative
 - Sensitivity to Fare Buy Down / BRAC
 - Park-and-Ride Needs Analysis
 - Cost/Revenue Projections
- **December**
 - Draft/Final Report
- **January**
 - Revised CLRP Submission

Service Modifications

Originating Area	Operator	Description	Service Frequency/Span Assumptions
Arlington/ Alexandria/DC	WMATA	WMATA 7B - Decrease headway on 7B from 35 minute to 17/18 minute by adding one bus	<i>Weekdays only - 6:12 am - 8:50 am and 4:32 pm - 7:17 pm</i>
Prince William	PRTC	OmniRide North Route 1 - Increase frequency on OmniRide North Route 1 by adding additional trips in peak period, one in midday and late evening	<i>Weekdays only - add 3 additional trips per peak period, one in midday and one in late evening. Assume each trip takes 100 revenue minutes</i>
Prince William	PRTC	OmniLink Route 1 - Extend OmniLink Route 1 to Ft. Belvoir during peak periods	<i>Weekdays only - Extends route 7 miles - 4 am runs and 4 pm runs would be extended. Assume 30 minutes additional revenue hours per run</i>
Corridor-wide	VRE	VRE Train Size - Increase train size so the 3 of the Fredericksburg trains have 8 cars and 4 have six cars	<i>Assumes VRE's planned expansion to 36 daily trains is funded and that the existing VRE locomotive fleet will be funded and in place by 2015 and the new locomotives are capable of pulling 8 car consists. Also assumes agreement with Amtrak to expand midday storage at Ivy City and L'Enfant storage tracks. Would not need additional overnight storage at Crossroads Yard/Fredericksburg or improvements for DC or overnight storage under this scenario</i>
Arlington/ Alexandria/DC	ART	ART 41 -Add 5 th bus to ART 41 on weekdays	<i>Weekdays only - 6:30 am to 8:30 pm. Currently every 15 minutes - increase to every 12 minutes</i>
Prince William	PRTC	PW MetroDirect - Modify Prince William MetroDirect Route to provide limited circulation in the Springfield area after serving the Franconia-Springfield station during peak hours	<i>Weekdays only - involves 8 peak trips (4 am and 4 pm). 5:25 - 8:15 am and 4:35 - 7:30 pm. Assume an additional 30 minutes for circulation</i>
Prince William	PRTC	Dale City - Navy Yard - Improvements to existing Dale City-Navy Yard route to serve additional park-and-ride lots along I-95 corridor and increase frequency. Adds 2 additional trips per peak period	<i>Weekdays, peak period only - involves 12 peak trips (6 am and 6 pm). 4:38 - 8:27 am and 3:37 - 8:00 pm. Assume 2 additional trips per peak period @105 rev min/trip</i>

New Shuttle/Feeder Services

Originating Area	Operator	Description	Service Frequency/Span Assumptions
Fairfax/ Springfield	Fairfax Connector	Franconia-Springfield Metro-EPG-Ft. Belvoir Shuttle - New shuttle service between the Springfield Metro - EPG - Ft. Belvoir via Franconia-Springfield Parkway and Fairfax County Parkway	<i>Weekday peak only - 12 minute headways. Distance 15 miles/loop - 36 minutes per loop. Assume three vehicles. May need to adjust depending on access to base</i>
Fairfax/ Springfield	Fairfax Connector	Lorton VRE-EPG -Ft. Belvoir Shuttle - New "meet the train" shuttle or subscription service between the Lorton VRE Station - EPG/Ft. Belvoir via Telegraph Rd, Fairfax County Parkway and Rolling Rd/Pohick Rd	<i>Weekday peak only - timed to meet VRE/Amtrak trains to/from the south (6 am and 6 pm). Distance 7-8 miles/loop - 15 minutes per loop. Assume one vehicle. May need to adjust depending on access to base</i>
Alexandria	Alexandria	Seminary Road Shuttle - New shuttle from Seminary Road In-line stations to jobs at Mark Center and Skyline	<i>Weekday peak only - 15 minute headways. Distance 3 miles/loop - 15 minutes per loop. Assume one vehicle.</i>

New Bus/Rail Services

Originating Area	Operator	Description	Service Frequency/Span Assumptions
Arlington/ Alexandria/DC	ART	Shirlington - Rosslyn - New express route from Arlington I-395 southern area to northern area (Shirlington to Pentagon-Washington Blvd, Rosslyn area)	<i>Weekdays only - assumed 20 minute headways in peak only. Distance 6 miles - assume 20 minutes.</i>
Fairfax/ Springfield	WMATA	Lorton/Laurel Hill -EPG - Pentagon - New express bus route from Lorton - EPG-Pentagon. Proposed at 15/30 min headways in 2015 and 10/15 in 2030–comment that the route should serve EPG southbound in the morning and northbound in the evening	<i>Weekdays only - assumed 10 minute headways in peak only. Distance 15 miles - assume 45 minutes.</i>
Prince William	PRTC	Dale City/Lake Ridge - EPG - New OmniRide route from Dale City/Lake Ridge to EPG (BRAC EIS proposed 30 minute headway)	<i>Weekday 30 minute headways peak hour only. Distance miles -15 miles - assume 30 revenue minutes per trip</i>
Prince William	PRTC	Woodbridge - EPG - New OmniRide route from Woodbridge to EPG (proposed 30 minute headway peak only)	<i>Weekday 30 minute headways peak hour only. Distance 10 miles - assume 20 revenue minutes per trip</i>
Stafford/ Fredericksburg	FAMPO	Fredericksburg - EPG/Ft. Belvoir - New Express/BRT route from Fredericksburg to EPG and Ft. Belvoir	<i>Weekday 30 minute headways peak hour only. Distance 40 miles - assume 1.5 revenue hours per trip - 12 trips (6 am and 6 pm)</i>
Stafford/ Fredericksburg	FAMPO	Fredericksburg - DC - New Express/BRT route from Fredericksburg to DC core (when combined with Massaponax, service would operate alternating 15 minutes)	<i>Weekday 30 minute headways peak hour only. Distance 55 miles - assume 2 revenue hours per trip - 12 trips (6 am and 6 pm)</i>
Stafford/ Fredericksburg	FAMPO	Massaponax to DC - New Express/BRT route from Massaponax to DC core (when combined with Fredericksburg-DC route, service would operate alternating 15 minutes)	<i>Weekday 30 minute headways peak hour only. Distance 60 miles - assume 2 revenue hours per trip - 12 trips (6 am and 6 pm)</i>
Fairfax/ Springfield	WMATA	Kingstowne - Shirlington - Pentagon - New express route serving Kingstowne-Van Dorn-Shirlington. Start at Kingstowne, stop at Van Dorn Metro, then travel along Van Dorn Avenue, Landmark Mall, Van Dorn Avenue, Sanger, Beauregard Street, Walter Reed Drive, and Arlington Mill Road, Shirlington, and then the HOT lanes to Pentagon. This service would be a limited stop service, possibly using some exclusive transitways in Alexandria	<i>Weekdays only but all day - 30 minute headways off peak and 20 minute headways in peak - bi-directional</i>
Prince William/Fairfax	PRTC	Woodbridge-Lorton-Tyson's and Merrifield - New OmniRide express route from East PW to the new Lorton VRE easy on/off to Tyson's to Merrifield	<i>Weekdays peak hour only - 30 min headways</i>
Prince William	PRTC	Central PW - Pentagon - DC - New OmniRide Route to start near Hoadley Rd, run express down PW Parkway to the HOV lanes - Pentagon and DC	<i>Peak hours only - 30 minute headways</i>

New Bus/Rail Services (continued)

Originating Area	Operator	Description	Service Frequency/Span Assumptions
Prince William	PRTC	Central PW - Downtown Alexandria - New route from Central Prince William County and along I-95 corridor then serving East Eisenhower Valley and Downtown Alexandria west of Washington Street	<i>Weekday 45 minute headways peak hour only. Distance 20 miles - assume 45 revenue minutes per trip</i>
Prince William	PRTC	Dale City to Seminary Road Area - New OmniRide Express Route from Dale City to Skyline, Bailey's Crossroads and Mark Center via Seminary Rd	<i>Weekdays only - peak period - 45 min headways serving Seminary Rd area - Mark Center, Skyline and other nearby employment centers - assume 4 trips in each peak period</i>
Prince William	PRTC	Lake Ridge to Seminary Road Area - New OmniRide Express Route from Lake Ridge to Skyline, Bailey's Crossroads and Mark Center via Seminary Rd	<i>Weekdays only - peak period - 45 min headways serving Seminary Rd area - Mark Center, Skyline and other nearby employment centers - assume 4 trips in each peak period</i>
Stafford/ Fredericksburg	FAMPO	Fredericksburg - Tyson's Corner - Merrifield - Extension of the new Woodbridge-Lorton-Tyson's-Merrifield route- OmniRide express route from East PW to new Lorton VRE easy on/off to Tysons to Merrifield.	<i>Weekday 30 minute headways peak hour only - included as an extension of the Prince William-Tyson's-Merrifield route. Distance 55 miles - 12 trips (6 am and 6 pm). Could be run with transfer at Lorton rather than non-express through Woodbridge.</i>
Stafford/ Fredericksburg	FAMPO	Fredericksburg - Pentagon/Crystal City - New Express/BRT route from Fredericksburg to Pentagon/Crystal City	<i>Weekday 30 minute headways peak hour only. Distance 50 miles - assumed 2 revenue hours per trip - 12 trips (6 am and 6 pm)</i>
Corridor-wide	VRE/Amtrak	Increase number of VRE trains on the Fredericksburg Line from 14 to 20 per day (10 North/10 South). Assume mix of 6 and 8 car trains	<i>Assumes agreement with Amtrak to expand mid-day storage at Ivy City and L'Enfant storage tracks. May need additional overnight storage at Crossroads Yard/Fredericksburg but would not need additional midday storage at DC under this consist mix scenario</i>

Fixed Facilities

Originating Area	Operator	Description	Explanation/Assumptions
Arlington/ Alexandria/DC	WMATA	Improvements at Pentagon Metrorail Transit Center (additional bus bays, real time information, traffic circulation/access/egress, security improvements)	
Fairfax/ Springfield	Fairfax Connector	Improvements at Franconia-Springfield Metrorail Transit Center (additional bus bays and bus canopies, real time information, traffic circulation/access/egress, security improvements)	
Corridor-wide	ITS Improve- ments	ITS projects to improve integration of information on HOT lanes/parking lots/bus/rail - NEXT Bus	
Corridor-wide		Additional park-and-ride lot capacity at various locations (new and/or existing lots)	
Corridor-wide	VRE	Platform Extensions at selected stations	<i>In order for VRE to run 8 car trains, platforms at key stations should be extended - VRE estimate 4 stations needing platform improvements. Can have 8 car trains at short platforms but not optimum</i>
Fairfax/ Springfield	Fairfax Connector	Transit Center near Ft. Belvoir/EPG	
Fredericksburg	FAMPO	Transit Center at Route 610	
Fredericksburg	FAMPO	Transit Center at Massaponax	
Corridor-wide		In line transit stations considered along the corridor - 4 in-line stations included in cost	<i>Suggested locations: Seminary Rd vicinity, Lorton (included in HOT project cost rather than here), Prince William Pkwy, VA Rt 610, US 17/Warrenton</i>
Corridor-wide	VRE	Overnight Storage in Fredericksburg	<i>With the increase in trains to 20, VRE will need additional storage at Crossroads in Fredericksburg</i>

TDM Program Elements

Originating Area	Operator	Description	Explanation/Assumptions
Corridor-wide		VanStart/VanSave	<i>Additional financial support to cover the cost of vacant seats for new vanpools during start-up operations, and established vanpools that have temporary vacancies. Support is short-term, one to six months, until regular riders are found to fill vacant seats</i>
Corridor-wide		TDM Programs Marketing	<i>Expand marketing efforts touting TDM programs and non-SOV commute modes in the corridor and feeder markets</i>
Corridor-wide		Electronic Toll Transponders for Vanpools	<i>Provide free electronic toll transponders to vanpools. (Although vanpools will use the toll lanes for free, this program is included in case some type of verification is needed to determine that the vehicle is a vanpool)</i>
Corridor-wide		TDM Program Signage	<i>New signage for Commuter Connections, with phone number and website, along the corridor</i>
Corridor-wide		NuRide Carpool Incentives	<i>Additional rewards for carpoolers registering their trips with NuRide. NuRide is a web-based carpool incentive program that provide rewards points for carpooling. The rewards points can be redeemed at participating retailers</i>
Corridor-wide		Signage in Park-and-Ride Lots	<i>New signage in park-and-ride lots to promote TDM programs. (This could be integrated into the ITS Improvements under Fixed Facility Improvements)</i>
Corridor-wide		Vanpool Tracking for NuRide	<i>Develop a tracking mechanism (GPS, cell phone) to track vans used for vanpools and vanpool riders for NuRide</i>
Corridor-wide		Vanpool Driver Incentives	<i>Provide incentives to get new drivers and retain existing drivers for vanpools</i>
Corridor-wide		Vanpool Insurance	<i>Increase vanpool insurance premium pool buy-down for vanpools</i>
Corridor-wide		Rideshare Program Operational Support	<i>Additional staff for commuter assistance programs in the corridor and feeder markets to promote TDM programs and transit. Funding also to continue operation of commuter store initiated with opening of HOT lanes and funded for initial five years of HOT lane operation</i>
Corridor-wide		Capital Cost of Contracting for Vanpools	<i>Incentives, IT monitoring and reporting of vanpool mileage, and promotion of capital cost of contracting for vanpools</i>
Corridor-wide		Rideshare Program Operational Support	<i>Additional staff for commuter assistance programs in the corridor and feeder markets to promote TDM programs and transit. Funding also to continue operation of commuter store initiated with opening of HOT lanes and funded for initial five years of HOT lane operation</i>
Corridor-wide		Telework Program Assistance	<i>Financial incentives for employers that start new telework programs at their worksites, funding for home-based equipment costs and consulting support</i>
Corridor-wide		Vanpool Driver Incentives	<i>Provide incentives to get new drivers and retain existing drivers for vanpools</i>
Corridor-wide		Vanpool Insurance	<i>Increase vanpool insurance premium pool buy-down for vanpools</i>

TDM Program Elements (continued)

Originating Area	Operator	Description	Explanation/Assumptions
Corridor-wide		Capital Assistance For Vanpools	<i>Provide financial assistance for the purchase or lease of vans for vanpools</i>
Corridor-wide		Enhanced Guaranteed Ride Home	<i>Enhanced promotion and operation of Guaranteed Ride Home (GRH) services in the extended corridor. Offers free taxi or rental car transportation to registered commuters who use alternative modes and have a personal emergency during the workday</i>
Corridor-wide		HOVER Pilot Program	<i>HOVER is a facilitated 'park and ride-share' system that involves tracking of all participants usage, and sharing of costs and benefits through a combination of financial and 'HOVER Ride Credit' accounts. Members earn credits for picking up passengers and passengers use their credits to ride. Ride credits are tracked electronically. A park-and-ride lot with 150 - 200 spaces is needed</i>