

National Capital Region Transportation Planning Board

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Item #5

MEMORANDUM

January 14, 2010

TO: Transportation Planning Board

FROM: Ronald F. Kirby
Director, Department of
Transportation Planning

RE: Letters Sent/Received Since the December 16th TPB Meeting

The attached letters were sent/received since the December 16th TPB meeting. The letters will be reviewed under Agenda #5 of the January 20th TPB agenda.

Attachments



Local governments working together for a better metropolitan region

January 6, 2010

District of Columbia
Bladensburg*
Bowie
College Park
Frederick
Frederick County
Gaithersburg
Greenbelt
Montgomery County
Prince George's County
Rockville
Takoma Park
Alexandria
Arlington County
Fairfax
Fairfax County
Falls Church
Loudoun County
Manassas
Manassas Park
Prince William County

*Adjunct member

Robert A. Mariner
Office of the Secretary
US Department of Transportation
1200 New Jersey Avenue, SE - W84-224
Washington, DC 20590

Dear Mr. Mariner:

This letter is in response to your request for additional information concerning several of the proposed project components contained in the Metropolitan Washington Council of Governments' TIGER Grant Application submitted on September 15, 2009 on behalf of the National Capital Region Transportation Planning Board. This request was made of my staff during a conference call you requested on December 30, 2009.

Your questions concerned three project components included in the grant application:

1. Priority Corridors Network: K Street Transitway Sub-package
2. Priority Corridors Network: Priority Corridor Enhancement Sub-package
3. Transit Centers: Medical Center Station Access

These questions and our responses are contained in the attachment to this letter. If you have any further questions or need additional information, please contact Ronald Kirby, Director, Department of Transportation Planning, at (202) 962-3310 or by e-mail at rkirby@mwkog.org. Thank you for your consideration of our application.

Sincerely,

David J. Robertson
Executive Director

Attachment: *Responses to Questions on the Metropolitan Washington Council of Governments' TIGER Grant Application submitted on behalf of the National Capital Region Transportation Planning Board*

ATTACHMENT

Responses to Questions on the Metropolitan Washington Council of Governments' TIGER Grant Application submitted on behalf of the National Capital Region Transportation Planning Board

January 6, 2010

1. Priority Corridors Network: K Street Transitway Sub-package

The K Street Transit way project between 24th Street, NW and 7th Street, NW., Washington, DC, is approaching 30% design completion. This project would reconstruct existing K Street to provide an exclusive two-way, two-lane, center transitway, flanked by medians on either side that include bus platforms, and three general purpose lanes in each direction. Parking and loading would be accommodated in the curb lanes during off-peak hours. Bicycles would be accommodated in the shared curb lanes while dedicated bike lanes will be accommodated on parallel streets. Since the submission of the TIGER grant application, DDOT has performed additional work which has resulted in a revised cost estimate for the project. According to the most recent estimate the new cost estimate for the project is \$95 Million including 20 percent match from DDOT. Therefore, the request for **Federal Grant** for this project is **\$ 76 Million** and DDOT match (share) is \$19 Million.

The following reasons have contributed to the cost reductions:

- Since the submission of the TIGER grant application, DDOT has performed additional work on the project including surveys and cost re-evaluations. The preliminary design work completed to date also includes utility survey. With the utility survey actual locations and conditions of the utilities have become known. This has resulted in substantial reduction of uncertainties regarding the costs, scheduling, and utility relocation and utility upgrade work. Based on this updated information the cost estimates have been revised.
- It has also been decided that the project will be completed as Design-Build to Budget. This will result in eliminating risk and contingencies from the project. With this approach the contingencies considered in the cost estimates have been reduced.
- Since the 30% design is already done, more concrete information is now available regarding the work needed to complete the project. This has also resulted in further decreasing the cost needed to complete the remaining design work.
- DDOT has reviewed its recently completed projects to make a comparison between the cost estimate prepared for K St and these recently completed projects. Based on benchmarking the K Street project with several other projects, it has been determined that the cost estimates can be revised.
- The recent construction market trends are showing construction costs either staying the same or going down. Therefore, the cost escalations considered in the original estimates can be reduced.

Included with this attachment is a revised cost estimate for the project which provides a breakdown of the costs.

d.

K Street Transitway Cost Estimate
21st Street to 9th Street
Length: 6,700 lf, 1.3 mi

8.10.2009
Updated 1.4.2010

Preferred Alternative (Alternative 2): 2-Lane Transitway				
Description	Quantity	Unit	Unit Cost	Amount
1. Grading				
a. Removal of Existing Roadway	19,380	CY	\$60.00	\$1,162,780
b. Removal of Existing Median	9,255	CY	\$60.00	\$555,280
c. Removal of Existing Sidewalk	9,226	CY	\$125.00	\$1,153,190
e. Excavation	65,000	CY	\$40.00	\$2,600,000
f. Borrow	97,000	CY	\$50.00	\$4,850,000
			TOTAL	\$10,321,253
2. Drainage				
a. Install WQ Inlet	130	EA	\$16,000.00	\$2,080,000
b. Remove Existing Inlet	130	EA	\$2,000.00	\$260,000
c. 6" Underdrain	15,000	LF	\$35.00	\$525,000
d. Install 48" I.D. Manhole	30	EA	\$8,150.00	\$244,500
e. 15" RCP Pipe	16,400	LF	\$130.00	\$2,132,000
f. Adjust Top of Manhole	90	EA	\$1,000.00	\$90,000
g. Erosion and Sediment Control	1	LS		\$400,000
			TOTAL	\$5,731,500
3. Roadway - General Purpose Lane Paving				
a. Portland Cement Concrete Pavement, 12"	41,015	SY	\$110.00	\$4,511,626
b. 2" Superpave, Type C Hot-Mix, 160 Gyration, PG 64-22	4,825	TON	\$100.00	\$482,527
c. 12" Graded Aggregate Base Course	41,015	SY	\$30.00	\$1,230,443
4. Roadway - Bus Lane Paving				
a. Portland Cement Concrete Pavement, 12"	17,712	SY	\$110.00	\$1,948,332
b. 2" Superpave, Type C Hot-Mix, 160 Gyration, PG 64-22	2,084	TON	\$100.00	\$208,378
c. 12" Graded Aggregate Base Course	17,712	SY	\$30.00	\$531,363
5. Sidewalk/Platforms				
a. Granite Curb	11,440	LF	\$100.00	\$1,144,000
b. Portland Cement Concrete Gutter	13,841	LF	\$35.00	\$484,435
c. Portland Cement Concrete Median (less than 5' wide)	493	SF	\$15.00	\$7,395
d. London Paver Sidewalk Section	265,156	SF	\$20.00	\$5,303,120
e. London Paver Platform Section (15 total platforms)	22,808	SF	\$20.00	\$456,160
6. Decorative Barrier (at bus platforms)	2,400	LF	\$150.00	\$360,000
			TOTAL	\$16,667,779
Structures				
1. Utility Vaults	20	EA	\$25,000.00	\$500,000
			TOTAL	\$500,000
Landscaping				
1. Median Plantings	40,117	SF	\$15.00	\$601,755
2. Tree Well Plantings	23,500	SF	\$20.00	\$470,000
2. Trees (assume 6" caliper)	450	EA	\$3,100.00	\$1,395,000
4. Furnishings (see note 1)	1	LS	\$352,500.00	\$352,500
			TOTAL	\$2,819,255
Mobilization, Maintenance of Traffic, Const. Engineering			25% of Grading, Roadway Paving, Sidewalks & Structures	\$6,872,257.98
Traffic				
1. Signing Structures				
a. Signing	80	EA	\$500.00	\$40,000
2. Lighting				
a. Sidewalk (Washington Globe twin-20 19' pole)	154	EA	\$8,000.00	\$1,232,000
b. Median (Washington Globe twin-20 19' pole)	64	EA	\$8,000.00	\$512,000
c. Intersection (Teardrop 30' pole)	58	EA	\$12,000.00	\$696,000
3. Pavement Marking				
a. 4" Thermoplastic Pavement Markings	42,700	LF	\$2.00	\$85,400
b. 12" Thermoplastic Pavement Markings	18,000	LF	\$3.00	\$54,000
c. Thermoplastic Bike Lane Symbol	112	EA	\$350.00	\$39,200
4. Signals				
a. New	14	EA	\$200,000.00	\$2,800,000
b. Temporary	14	EA	\$50,000.00	\$700,000
5. ITS				
a. Cameras	7	EA	\$20,000.00	\$140,000
b. Concrete Encased Multi Duct (4)	6,800	LF	\$100.00	\$680,000
			TOTAL	\$6,978,600

d.

K Street Transitway Cost Estimate
21st Street to 9th Street
Length: 6,700 lf, 1.3 mi

8.10.2009
 Updated 1.4.2010

Preferred Alternative (Alternative 2): 2-Lane Transitway				
Description	Quantity	Unit	Unit Cost	Amount
Environmental Mitigation				
1. Stormwater Management				
a. Bioretention Area	45,000	SF	\$20.00	\$900,000
b. Porous Pavers	108,500	SF	\$8.00	\$868,000
		TOTAL		\$1,768,000
Utility Relocations/Adjustments				
1. Water Line Upgrades	13,100	LF	\$138.00	\$1,807,800
2. Fiber Optic under Transitway	6,000	LF	\$200.00	\$1,200,000
3. Cable TV under Transitway	6,000	LF	\$100.00	\$600,000
4. Lump Sum Budget for Other - 10% of Grading, Roadway Paving, Sidewalks & Structures				\$2,748,903
		TOTAL		\$6,356,703
Subtotal Base Construction Cost				\$58,015,348
Other Construction Items		35% of Base Construction Cost		\$20,306,000
TOTAL NEAT CONSTRUCTION COST				\$78,322,000
DDOT Program Management Cost				
Final Design		3% of Neat Construction Cost		\$2,350,000
Construction Management		6% of Neat Construction Cost		\$4,700,000
Contingency		13% of Neat Construction Cost		\$10,181,860
Subtotal DDOT Program Management Cost				\$17,231,860
TOTAL PROJECT COST				\$95,553,860

2. Priority Corridors Network: Priority Corridor Enhancement Sub-package

Background:

The Priority Corridors Network (Package 1) has three sub-packages: (1) K Street Transitway Sub-package, (2) Priority Enhancements Sub-package, and (3) Bus Priority on Managed Lanes Sub-package. The improvements specified in this first package of the TPB grant application come from a variety of sources. Many of the recommended improvements were developed by WMATA, the regional transit operator. Localities have also put forward preferred priority routes.

Additionally, the Virginia Department of Rail and Public Transportation requested two components that would provide benefit to buses operating on managed lanes projects in the Commonwealth of Virginia. Participants completed project submission forms that included all the desired project detail, including breakdowns of specific work plans for each bus line and associated costs. A summary of these project features was provided in the table on page 7 of the TPB grant application. Project specific details were included in Appendix 1 of the TIGER grant application, available on the TPB TIGER website:

<http://www.mwcog.org/transportation/TIGER>

The “K Street Transitway Sub-package” is a physical runningway improvement that will provide benefit to approximately 43 bus routes. The “Priority Corridor Enhancements Sub-package” included 13 bus lines that would receive improvements. However, each “line” is in fact several routes, all of which will receive some or all of the planned benefit. For example, the WMATA “30s Line” is in fact a family of 7 different bus routes (31, 32, 34, 37, 39, M5, M6).

Finally, the “Bus Priority on Managed Lanes Sub-package” features three time-saving improvements. The first two are the additions of bus bays at the Pentagon and Franconia-Springfield Metrorail stations, expected to reduce congestion at these major bus-to-rail transfer hubs and save a few minutes per peak period bus trip. The third is the “Vaden Ramp” at the Vienna Metrorail Station in the I-66 Corridor. This transit-only ramp would provide direct access for buses between the I-66 median-running HOV lanes and the Metro station, saving on average 5 minutes per bus trip while eliminating a dangerous weaving maneuver that buses currently must perform in order to access the station. These three improvements will impact 96 (Pentagon), 24 (Franconia-Springfield) and 10 (Vienna) bus routes.

1) A breakdown of the specific work planned for each bus line listed and associated cost;
A breakdown of the specific work planned for each bus line was included in the online appendix, available at <http://www.mwcog.org/transportation/TIGER>. More specifically, the detailed breakdown of bus route improvements is available in Appendix 1 on page 2 of the PDF document available at the following link: <http://www.mwcog.org/uploads/committee-documents/Z15aWVhb20091229134933.pdf>

If more detailed information is required, more detailed work plans can be presented upon request.

2) The time savings expected on each bus line as a result of the improvements planned; The time savings for each bus route or improvements was included in the details of the Bus Package benefit/cost analysis, available at <http://www.mwcog.org/transportation/TIGER> (Select the “*Priority Bus BCA Model*” link). A summary of the time savings (in minutes) per bus route/improvement is also included in the table below:

ID	Name	Travel Time Savings
1	K Street Transitway	7
2	16th Street	2.16
3	Georgia Avenue	2.16
4	H Street/Benning Road	0.92
5	Wisconsin Avenue	1.32
6	Addison Road	0
7	University Boulevard	4.32
8	US 1 (MD)	5.91
9	Veirs Mill Road	0.75
10	US I Transitway (VA)	2.5
11	VA 7 Leesburg Pike	2.64
12	Van Dorn-Pentagon BRT	3.25
13	T.R. Bridge to K Street	3
14	14th Street to K Street	5
15	I-66 Multimodal Improvements	5
16	I-95/395 Multimodal Improvements	
16a	Franconia/Springfield Bus Bays	2.5
16b	Pentagon Bus Bays	2.5
16c	TPS along I-95/395 Corridor	0
18	Takoma/Langley Transit Center	2
19	Rosslyn Metrorail Station Access	0
20	Medical Center Station Access	0

3) Current ridership numbers for each bus line and expected changes as a result of the improvements.

As noted above, the priority bus improvements proposed in the TPB TIGER grant application impacts a large number of bus routes throughout the Washington region. Across all the improvements, a total of 287 bus routes will be impacted. A full listing of the number of bus routes impacted by each bus corridor is provided on the following page.

The daily ridership on the bus routes impacted by these improvements is approximately 260,000. This figure was determined by collecting ridership statistics from the operators of the impacted bus lines. Most of the ridership numbers are from June or July of 2009, but earlier data was used when later values were not available. The values for the individual bus routes are available in column CL of the Bus Lines Analysis tab of the Priority Bus Benefit/Cost Workbook, which is accessible from the previously-referenced link.

Ridership increases were estimated by assuming a -0.50 travel time elasticity, meaning that for each percent decrease in travel time, the ridership would increase by ½-percent. When applied to the travel time savings across all nearly 300 bus routes, a total of 19,395 new riders was calculated. The values for the individual bus routes are available in column CV of the Bus Lines Analysis tab of the Priority Bus Benefit/Cost Workbook.

ID	Name	Bus Routes Impacted
1	K Street Transitway	43
2	16th Street	7
3	Georgia Avenue	7
4	H Street/Benning Road	3
5	Wisconsin Avenue	14
6	Addison Road	2
7	University Boulevard	7
8	US 1 (MD)	5
9	Veirs Mill Road	2
10	US I Transitway (VA)	3
11	VA 7 Leesburg Pike	8
12	Van Dorn-Pentagon BRT	14
13	T.R. Bridge to K Street	34
14	14th Street to K Street	26
15	I-66 Multimodal Improvements	10
16	I-95/395 Multimodal Improvements	
16a	Franconia/Springfield Bus Bays	24
16b	Pentagon Bus Bays	96
16c	TPS along I-95/395 Corridor	0
18	Takoma/Langley Transit Center	20
19	Rosslyn Metrorail Station Access	0
20	Medical Center Station Access	0

3. Transit Centers: Medical Center Station Access

On December 22, 2009, the President signed the FY2010 Defense Appropriations Act (H.B. 3326) into law. The legislation includes \$300 million to fund BRAC-related transportation mitigation improvements in the vicinities of both Fort Belvoir in Virginia and new Walter Reed National Military Medical Center in Bethesda, Maryland. According to Maryland's 8th District Congressman Chris Van Hollen's website, Medical Center projects include "improvements to the surrounding roads, including MD-355, and upgrades to the Metro station." (<http://vanhollen.house.gov/News/DocumentPrint.aspx?DocumentID=164521>, accessed January 5, 2010).

In a letter dated October 2, 2009 to Rep. Van Hollen, Messrs. Anthony G. Brown, Lieutenant Governor and Chairman of the Governor's Subcabinet on Base Realignment and Closure, State of Maryland and Isiah Leggett, County Executive, Montgomery County, Maryland, identified needed transportation infrastructure improvements to support the implementation of the BRAC 2005 decision at the new Walter Reed National Military Medical Center. This letter (attached), which was prepared in response to a request from Rep. Van Hollen, identified \$127 million in needed transportation projects needed to mitigate the effects of BRAC implementation. The projects include improvements to roadways surrounding the medical center as well as to the Medical Center Metrorail Station.

vanhollen.house.gov

Chris Van Hollen

Contact:

Van Hollen, Cardin, Mikulski Join with State and Local Officials to Announce \$300 Million for Essential BRAC Traffic Fix in National Capitol Region

Washington, Dec 22 -

Congressman Chris Van Hollen and Senators Benjamin L. Cardin and Barbara A. Mikulski (all D-Md.) gathered today at the edge of MD-355 and steps away from the Medical Center Metro Station with Maryland Lt. Governor Anthony G. Brown and Montgomery County Executive Ike Leggett to announce unprecedented federal investment in BRAC-related transportation projects outside the gate of what will be the new Walter Reed National Military Medical Center in Bethesda. Projects include improvements to the surrounding roads, including MD-355, and upgrades to the Metro station.

\$300 million was included for BRAC-related transportation mitigation efforts for the future Walter Reed National Military Medical Center in Bethesda (currently the Bethesda National Naval Medical Center) and the Fort Belvoir Community Hospital in Virginia as part of the FY2010 Defense Appropriations Act. Both installations and their surrounding communities stand to be heavily impacted by the 2005 BRAC-mandated consolidation, which is set to conclude in September 2011.

“This unprecedented investment will allow us to help ensure that the new Walter Reed National Military Medical Center is a world-class center of excellence for our nation’s wounded warriors, and that the demands placed on the surrounding community as a result of this relocation are adequately addressed,” said **Congressman Van Hollen**. “Federal, state and local officials are working closely with the community to create as smooth a transition as possible, and this funding will be a critical component of our success.”

“This announcement is good news for the thousands of wounded warriors and their families who will use the new Walter Reed National Military Medical Center, as well as Montgomery County’s beleaguered commuters,” **Senator Cardin** said. “As a delegation, we have been united in our effort to provide needed federal support for the expanded medical facility and the tens of thousands of new military and civilian jobs being brought to our state through the BRAC process. I am pleased that we are able to make such an unprecedented investment in a truly world-class facility.”

“I fought in the Senate to BRAC-proof Maryland’s bases, now I am working to BRAC-ready our transportation systems. Our troops fight overseas to protect our freedom, they shouldn’t have to fight traffic to get the care they’ve earned when they get back,” said **Senator Mikulski**, a senior member of the Senate Appropriations Committee. “The Walter Reed National Military Center at Bethesda will be the frontline in delivering care to our wounded warriors. I am proud to partner with my Team Maryland colleagues to make BRAC a success and secure the federal funding needed to meet the increased demands on our communities.”

“Senators Mikulski and Cardin and Congressman Van Hollen gave us all an early holiday present this year. The \$300 million for BRAC transportation projects that Team Maryland successfully defended during the Defense Appropriations debates will go a long way to help Governor O’Malley and I and our partners in local government continue our shared efforts to preserve the high quality of life in the Bethesda communities,” said **Lt. Governor Brown**, chair of the Governor’s Subcabinet on Base Realignment and Closure. “Because we share an understanding that we can accomplish a great deal more when all stakeholders are working toward

Page 9

common goals and because we share a commitment to success, I am confident that when we complete this transition process, Montgomery County residents, Marylanders and Americans will all take pride in the expanded national service the Bethesda community will provide for those men and women who bravely wear our nation's uniform."

"I want to thank the folks who really made this possible. Our Congressman, Chris Van Hollen and our Senators, Barbara Mikulski and Ben Cardin," said **Montgomery County Executive Ike Leggett**. "This new medical center is designed to provide world-class care to our nation's bravest men and women, but that mission will fail unless doctors, nurses, patients, family, and friends can gain timely access to the facility. Today's announcement represents a huge leap forward."

Maryland's Congressional delegation has fought to prepare Maryland communities and military bases for the 2005 BRAC process. The BRAC Commission's recommendations were a huge success and will bring 45,000 to 60,000 new jobs to Maryland by 2020 as well as new sources of state revenue.



October 2, 2009

The Honorable Chris Van Hollen
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman Van Hollen:

This letter responds to your request for information regarding transportation infrastructure improvements to support the BRAC 2005 decision to establish the new Walter Reed National Military Medical Center (WRNMMC) in Bethesda. Specifically, this letter sets forth the following statement of need that you requested regarding the funds required for BRAC-related congestion mitigation and pedestrian safety priorities necessary for the new facility to succeed. We have worked hand in hand with the Department of the Navy in developing these mitigations, and they agree that our priorities are in full support of the Department's objective of completing all Base Realignment and Closure (BRAC) requirements by the September 2011 statutory deadline.

Ensuring that our wounded warriors receive the highest quality of care is of critical importance to us. We are proud of our community's role in being home to the new Walter Reed National Military Medical Center, but we also want to ensure that adequate steps are taken to minimize the impacts to the surrounding neighborhoods, and prevent total traffic gridlock around the new facility, which would negatively impact the ability of patients and medical personnel to access the Center.

In recognition of today's challenging fiscal environment, we have focused this statement of need on an initial set of cost-effective, consensus measures that can be completed in the near to medium term. As such, this document should not be considered exhaustive. Furthermore, this document is not intended as a substitute for ongoing longer term or broader statewide transportation planning efforts and in no way precludes additional measures based on further community input and the availability of future funds.

The September 2011 deadline to implement the 2005 BRAC requirements is rapidly approaching. In that regard, the BRAC requirement relocating most of the current Walter Reed Army Medical Center functions in Washington, DC to the National Naval Medical Center in Bethesda, MD is expected to add 2500 personnel to the Bethesda facility, increasing staff levels by one third and doubling to nearly one million the number of visits to the Bethesda campus annually. Additionally, unlike other actions mandated by the 2005 BRAC law, this realignment is taking place in an already densely

populated urban neighborhood. The existing road network currently operates at capacity, and in some cases is already failing, making it impossible to accommodate additional personnel without substantial infrastructure improvements. Like you, we are concerned that these impacts, if left unmitigated, will compromise the mission of the new Walter Reed National Military Medical Center and the quality and timeliness of care our nation's wounded warriors receive.

To avoid that result, and at your request, we have put together the following statement of need for this installation facility focused on consensus, cost-effective mitigation priorities that can be accomplished in the near to medium term:

MD 355 and Cedar Lane Intersection Improvements (Phases 3-5) – \$50 million

These improvements at MD 355 and Cedar Lane include unfunded phases of a larger project. These phases include widening along Cedar Lane, an additional lane along northbound MD 355 north of the intersection and an additional lane along southbound MD 355 north of the intersection. These improvements are projected to reduce vehicle delay by 60% in the AM peak period and 67% in the PM peak period, in 2011. Once completed, the entire intersection improvement is expected to operate at pre-BRAC conditions through the year 2030.

Medical Center Metro Station Underpass – \$40 million

The proposed underpass from the Medical Center Metro Station to the new Walter Reed National Military Medical Center would mitigate a major source of gridlock by improving access to the Medical Center Metro station for over 6700 pedestrians and bicyclists who will need to cross MD 355 from the Walter Reed National Military Medical Center facility daily after 2011. Additionally, the underpass would reduce conflicts between vehicular traffic and pedestrians destined for the WRNMMC, thus improving vehicular, pedestrian and bicyclist safety.

MD 185 and Jones Bridge Road Intersection Improvements (Phases 2 and 3) – \$20 million

These improvements at MD 185 at Jones Bridge Road would consist of unfunded phases of a large project. The improvements consist of adding a lane along northbound MD 185 from Jones Bridge Road to I-495 and widening of Jones Bridge Road. Once completed, the entire intersection improvement will reduce vehicle delay by 48% in the AM and 54% in the PM in 2011. With the improvements, the intersection is projected to operate at pre-BRAC conditions at least through 2024.

MD 355 and Jones Bridge Road Intersection Improvements – \$5 million

The proposed modifications at the intersection of MD 355 and Jones Bridge Road would add a second exclusive left turn lane to southbound MD 355, add an exclusive left out of NIH at Center Drive, and change lane usage on eastbound Jones Bridge Road from a shared through/left lane to an exclusive left. In the year 2011, these improvements will reduce vehicle delay by 36% and 53% during the AM and PM peak hours, respectively, while also improving volume-to-capacity ratios by 17% and 18% during the same peak periods. Once completed, these improvements would maintain operations at a level as good as present conditions through 2024, despite the BRAC impacts.

MD 187 and Cedar Lane Intersection Improvements – \$7 million

The planned improvements at MD 187 and Cedar Lane would add an exclusive right turn lane along northbound MD 187, change lane usage on westbound Cedar Lane from a through lane to a shared through/left, and construct a ten foot shared use path along MD 187 as part of the historic Bethesda Trolley Trail. At build-out, these improvements would reduce vehicle delay by 12% and 53% during respective AM and PM peak periods, and improve volume to capacity ratios by 9% and 26% during the same periods. Once completed, the modified intersection is anticipated to operate at Level of Service E or better through 2027, notwithstanding BRAC consolidation in the corridor.

Bikeway/Sidewalk Improvements on Cedar Lane, MD 355 and Jones Bridge Road – \$5 million

The new Walter Reed National Military Medical Center is located in an urban county with a population approaching one million. The established neighborhoods surrounding the facility have a network of pathways used by cyclists and pedestrians for commuting purposes. Improving this pathways network will encourage more alternative modes of commuting, thereby reducing the number of single occupancy vehicles causing gridlock around the new Walter Reed National Military Medical Center.

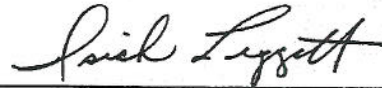
The total cost of these mitigation measures of regional priority is \$127 million. If funding for these initiatives is found, we are in a position to move expeditiously towards their completion so that our nation's wounded warriors receive in a timely manner the world class care they have earned and deserve.

Thank you for your continued partnership on this issue. We look forward to working with you to ensure the success of the new Walter Reed National Military Medical Center.

Sincerely,



Anthony G. Brown
Lieutenant Governor
Chairman, Governor's Subcabinet on
Base Realignment and Closure
State of Maryland



Isiah Leggett
County Executive
Montgomery County, Maryland

EPA Strengthens Smog Standard/Proposed standards, strictest to date, will protect the health of all Americans, especially children

Release date: 01/07/2010

Contact Information: Cathy Milbourn milbourn.cathy@epa.gov 202-564-7849 202-564-4355; En español: Lina Younes, younes.lina@epa.gov / 202-564-9924, 202-564-4355

The United States Environmental Protection Agency today proposed the strictest health standards to date for smog. Smog, also known as ground-level ozone, is linked to a number of serious health problems, ranging from aggravation of asthma to increased risk of premature death in people with heart or lung disease. Ozone can even harm healthy people who work and play outdoors. The agency is proposing to replace the standards set by the previous administration, which many believe were not protective enough of human health.

"EPA is stepping up to protect Americans from one of the most persistent and widespread pollutants we face. Smog in the air we breathe poses a very serious health threat, especially to children and individuals suffering from asthma and lung disease. It dirties our air, clouds our cities, and drives up our health care costs across the country," said EPA Administrator Lisa P. Jackson. "Using the best science to strengthen these standards is a long overdue action that will help millions of Americans breathe easier and live healthier."

The agency is proposing to set the "primary" standard, which protects public health, at a level between 0.060 and 0.070 parts per million (ppm) measured over eight hours. Children are at the greatest risk from ozone, because their lungs are still developing, they are most likely to be active outdoors, and they are more likely than adults to have asthma. Adults with asthma or other lung diseases, and older adults are also sensitive to ozone.

EPA is also proposing to set a separate "secondary" standard to protect the environment, especially plants and trees. This seasonal standard is designed to protect plants and trees from damage occurring from repeated ozone exposure, which can reduce tree growth, damage leaves, and increase susceptibility to disease.

In September 2009 Administrator Jackson announced that EPA would reconsider the existing ozone standards, set at 0.075 ppm in March 2008. As part of its reconsideration, EPA conducted a review of the science that guided the 2008 decision, including more than 1,700 scientific studies and public comments from the 2008 rulemaking process. EPA also reviewed the findings of the independent Clean Air Scientific Advisory Committee, which recommended standards in the ranges proposed today.

Depending on the level of the final standard, the proposal would yield health benefits between \$13 billion and \$100 billion. This proposal would help reduce premature deaths, aggravated asthma, bronchitis cases, hospital and emergency room visits and days when people miss work or school because of ozone-related symptoms. Estimated costs of implementing this proposal range from \$19 billion to \$90 billion.

Ground-level ozone forms when emissions from industrial facilities, power plants, landfills and motor vehicles react in the sun.

EPA will take public comment for 60 days after the proposed rule is published in the Federal Register. The agency will hold three public hearings on the proposal: Feb. 2, 2010 in Arlington, Va. and in Houston; and Feb. 4, 2010 in Sacramento.

More information: <http://www.epa.gov/groundlevelozone>

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Modeling and Inventories

<http://www.epa.gov/otaq/models/moves/index.htm>
Last updated on Wednesday, December 23rd, 2009.

You are here: [EPA Home](#) [Transportation and Air Quality](#) [Modeling, Testing, and Research](#)
[Modeling and Inventories](#) MOVES (Motor Vehicle Emission Simulator)

MOVES (Motor Vehicle Emission Simulator)

EPA's Office of Transportation and Air Quality (OTAQ) is developing the **MO**tor **V**ehicle **E**mission **S**imulator (MOVES). This new emission modeling system will estimate emissions for on-road and nonroad mobile sources, cover a broad range of pollutants, and allow multiple scale analysis.

New! **MOVES2010 is now available** for analysis of air pollution emissions from highway vehicles. Material relating to Draft MOVES2009 has been moved to [MOVES Technical Background](#).

- [MOVES2010 Mobile Source Emissions Model: Questions and Answers \(PDF\)](#) (9 pp, 128K, EPA-420-F-09-073, December 2009) Describes the model and provides general information for model use.
- [Instructions for downloading and extracting MOVES2010InstallationSuite](#)
- [Installation instructions](#) These are also included in the MOVES2010InstallationSuite, as readme.txt.
- [Download MOVES2010InstallationSuite \(ZIP\)](#) (558MB) Includes everything needed to install MOVES2010: installation instructions (readme.txt), executable file for the MOVES software, default database, and the User Guide.
- [MOVES2010 Errata Sheet/Information Sheet \(PDF\)](#) (5 pp, 117K, EPA-420-B-09-043, December 2009)
- [MOVES2010 Policy Guidance \(PDF\)](#) (17 pp, 148K, EPA-420-B-09-046, December 2009) This document describes how and when to use the MOVES2010 emissions model for SIP development, transportation conformity determinations, and other purposes.
- [MOVES2010 Technical Guidance \(PDF\)](#) (46 pp, 397K, EPA-420-B-09-042, December 2009) This document provides guidance on appropriate input assumptions and sources of data for the use of MOVES2010 in SIP submissions and regional emissions analyses for transportation conformity purposes.
- [Input file converters and other modeling tools](#) Includes spreadsheet tools that help with the transition from MOBILE6.2 to MOVES.
- [MOVES2010 User Guide \(PDF\)](#) (150 pp, 4.75MB, EPA-420-B-09-041)
- [MOVES2010 User Guide Example Files \(ZIP\)](#) (1.9M) These files correspond to the examples described in the appendices of the MOVES2010 User Guide.
- [Software Development Reference Manual for Draft MOVES2009 \(PDF\)](#) (279 pp, 1.3MB, EPA-420-B-09-007, March 2009) (SDRM for MOVES2010 will be posted soon.)
- [MOVES2010 Training Sessions](#)
- [MOVES Technical Background](#) Contains technical details on MOVES design and inputs, and information on previous versions of MOVES.
- [FACA MOVES Review Work Group Materials](#) from recent meetings of the Federal Advisory Committee Act (FACA) MOVES Model Review Work Group.

NOTE: You will need Adobe Acrobat Reader, available as a free download, to view some of the files on this page. See [EPA's PDF page](#) to learn more about PDF, and for a link to the free Acrobat Reader.

For further information:

MOVES staff email: mobile@epa.gov.

Updates and news on EPA mobile source emission models: [Listserver Subscription Information](#)

For further information on transportation conformity and SIPs, see the following website: <http://www.epa.gov/otaq/stateresources/>; or contact [Meg Patulski](#) for transportation conformity policy questions (734-214-4842, patulski.meg@epa.gov) or [Rudy Kapichak](#) for SIP policy questions (734-214-4574, kapichak.rudolph@epa.gov).

For further information or assistance regarding this web page, contact:
ASD Information Line, phone: 734-214-4636 or email: asdinfo@epa.gov.

Instructions for downloading and extracting MOVES2010InstallationSuite.zip

1. On your Desktop make a folder and name it MOVES_Install.
2. Download MOVES2010InstallationSuite.zip.
3. Move MOVES2010InstallationSuite.zip to the MOVES_Install folder on your desktop.
4. Right click on the MOVES2010InstallationSuite.zip and extract the contents to the same folder.
5. You should have in your MOVES_Install folder the following files/folders:
 - data
 - Java_1.6.0_12
 - MOVES
 - MySQL5132
 - MySQL_Query_Browser
 - ODBC_3.51
 - readme
 - Support_Files
 - InstallInstructions.txt
 - MOVES2010InstallationSuite.zip (from which all the others were extracted)
 - Setup.exe (the MOVES Installation Suite)
6. Double click on the Setup.exe and follow the instruction in the MOVES Installation Suite. It will install all the necessary components.

NOTE: The operating system may automatically offer the option to temporarily override User Account Control (UAC) during MOVES installation. This option should be selected. If the user continues to have UAC problems after choosing a temporary override, or if the temporary override option is not automatically provided on a particular system, it may be necessary to turn off UAC manually.

Installation instructions

These are also included in the MOVES2010InstallationSuite, as readme.txt.

The MOVES Installation Suite (Suite) will install MOVES2010 on your computer. MOVES2010 is a 32-bit application that may be run with the following operating systems: Windows 2000, XP, Vista, Windows 7, 2003 server and 2008 server.

Software required by MOVES2010

Operating system: Windows 2000, XP, Vista, Windows 7, 2003 server or 2008 server
Java 1.6.0_12 SDK (provided in Suite)
MySQL 5.1.32 or higher, (MySQL 5.1.32 is provided in Suite)

MySQL Query Browser (recommended and provided in Suite)
MySQL Connection ODBC 3.51 (optional and provided in Suite)

Install MOVES2010

1. Verify that you have administrative rights on your computer.
2. You will need Adobe Acrobat Reader to view PDF help files.
3. Double-Click on "setup.exe" of the MOVES Installation Suite, located on the installation CD/DVD or downloaded from the EPA's MOVES web site.
4. Alternatively MOVES2010 can be manually installed.

Please refer to the file "Troubleshooting.txt" in the MOVES Installation Suite folder for manual installation instructions.

Run MOVES2010

There are three methods to invoke MOVES.

1. Double-click on the desktop icon "MOVES Master".
2. Select the program item "MOVES Master" from start -> All Programs -> MOVES.
3. Open a DOS prompt command line screen.
Change directory to select the directory where MOVES2010 is installed.
type setenv.bat, hit return.
type ant rungui, hit return.

EPA Releases MOVES2010 Mobile Source Emissions Model: Questions and Answers

Q1. What is MOVES2010?

A1. MOVES2010 is the state-of-the-art upgrade to EPA's modeling tools for estimating emissions from highway vehicles, based on analysis of millions of emission test results and considerable advances in the Agency's understanding of vehicle emissions. MOVES2010 replaces the previous model for estimating on-road mobile source emissions, MOBILE6.2.

Q2. Why is EPA replacing MOBILE6.2 with MOVES2010?

A2. The Clean Air Act (CAA) requires EPA to regularly update its mobile source emission models. EPA continuously collects data and measures vehicle emissions to make sure the Agency has the best possible understanding of mobile source emissions. This assessment, in turn, informs the development of EPA's mobile source emission models. MOVES2010 represents the Agency's most up-to-date assessment of on-road mobile source emissions. MOVES2010 also incorporates several changes to the EPA's approach to mobile source emission modeling based upon recommendations made to the Agency by the National Academy of Sciences.

Q3. Can MOVES2010 be used for state implementation plans and transportation conformity?

A3. MOVES2010 can be used to estimate air pollution emissions from cars, trucks, motorcycles, and buses. It will be approved for use in official state implementation plan (SIP) submissions to EPA and for transportation conformity analyses outside of California. It can also be used to estimate the benefits from a range

of mobile source control strategies, for more general analyses of national or local emissions trends, and for policy evaluation. MOVES2010 is EPA's best available tool for quantifying criteria pollutant and precursor emissions, as well as for other emissions analyses of the transportation sector.

Prior to this official release of MOVES2010, the MOBILE6.2 motor vehicle emission factor model was the only model approved for performing SIP and transportation conformity analyses outside of California (where the approved model for these analyses is currently the EMFAC2007 model). EPA will be publishing a Federal Register notice of availability in the near future to approve MOVES2010 for official purposes. Upon publication of the Federal Register notice, MOVES2010 will become EPA's approved motor vehicle emission factor model for estimating volatile organic compounds (VOCs), nitrogen oxides (NO_x), carbon monoxide (CO), direct particulate matter (PM₁₀ and PM_{2.5}) and other pollutants and precursors from cars, trucks, motorcycles, and buses by state and local agencies outside of California. EPA intends to include in the notice a two-year grace period for using MOVES2010 for transportation conformity purposes.

Q4. When should MOVES2010 be used for SIP and transportation conformity analyses?

A4. In general, EPA believes that MOVES2010 should be used in ozone, CO, PM, and nitrogen dioxide SIP development outside of California as expeditiously as possible. The CAA requires that SIP inventories and control measures be based on the most current information and applicable models that are available when a SIP is developed.

Regarding transportation conformity, EPA and DOT intend to establish a two-year grace period before MOVES2010 is required for new transportation conformity analyses outside of California. EPA will publish a Federal Register notice of availability in the near future to approve MOVES2010 for official purposes.

For more information on the requirements regarding the use of MOVES2010 for SIP and transportation conformity analyses, including implementation of the MOVES2010 conformity grace period, see EPA's "Policy Guidance on the Use of MOVES2010 for State Implementation Plan Development, Transportation Conformity, and Other Purposes," available at www.epa.gov/otaq/stateresources/transconf/policy.htm#models.

Q5. Can MOVES2010 be used to estimate greenhouse gas emissions?

A5. MOVES2010 is currently the best tool EPA has for estimating greenhouse gas (GHG) emissions from the transportation sector. It is a significant improvement over MOBILE6.2 and previous versions of MOVES for GHG estimation. State and local agencies estimating GHG emissions in the transportation planning process should consider using MOVES2010 for GHG emissions analyses in the future.

Q6. Can MOVES2010 be used to estimate mobile source air toxics?

A6. MOVES2010 estimates emissions for the following mobile source air toxics (MSATs): benzene, 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, naphthalene, ethanol, and MTBE. MOVES2010 is EPA's best available tool for quantifying emissions of these MSATs. State and local agencies, academic institutions, and other interested parties who are interested in analyzing MSAT emissions from transportation projects are encouraged to use MOVES2010. EPA is working to integrate additional MSATs into the MOVES modeling framework in the near future.

EPA notes that there are no SIP and transportation conformity requirements for air toxics. Regarding the analysis of MSAT emissions in the National Environmental Policy Act (NEPA) process, DOT has responsibility for implementing NEPA for federally-funded or approved transportation projects.

Q7. Why has EPA changed the name of its mobile source model from "MOBILE" to "MOVES"?

A7. The name "MOVES" is an acronym for "Motor Vehicle Emission Simulator." The name change signals the new approach to projecting mobile source emissions being taken in the new model. The MOVES generation of models is not merely an upgrade of the previous MOBILE model using more recent emissions data; it is brand-new software, designed from the ground up to estimate emissions at a more detailed level.

The more detailed approach to modeling allows EPA to easily incorporate large amounts of in-use data from a wide variety of sources, such as data from vehicle inspection and maintenance (I/M) programs, remote sensing device (RSD) testing, certification testing, portable emission measurement systems (PEMS), etc. This approach also allows users to incorporate a variety of activity data to better estimate emission differences such as those resulting from changes to vehicle speed and acceleration patterns. For example, the improvements in MOVES2010 will allow project-level PM_{2.5} and PM₁₀ emissions to be estimated.

The current version of the model – MOVES2010 – is so named to indicate the first year in which the model may be used in SIPs and conformity determinations, and to clearly distinguish the model from its precursor, Draft MOVES2009.

Q8. What has EPA done to prepare users for the release of MOVES2010?

A8. In April 2009, EPA released "Draft MOVES2009" as a work-in-progress to solicit user comments that were then used to improve the official final version: MOVES2010. In addition to aiding EPA as it worked toward finalizing MOVES2010, the draft model allowed potential users to gain valuable experience with the new input formats for the

MOVES generation of models.

Between the release of Draft MOVES2009 and MOVES2010, EPA and the Federal Highway Administration (FHWA) conducted a total of 20 training sessions across the country for state and local users of the MOVES model. EPA also made training materials available on its website at <http://www.epa.gov/otaq/models/moves/index.htm>.

In addition to the above training, EPA has developed several documents to assist in implementing MOVES2010, including the following:

“MOVES2010 User Guide”: This guide provides detailed instructions for setting up and running MOVES2010. Available at www.epa.gov/otaq/models/moves/index.htm.

“Policy Guidance on the Use of MOVES2010 for State Implementation Plan Development, Transportation Conformity, and Other Purposes”: This document describes how and when to use the MOVES2010 emissions model for SIP development, transportation conformity determinations, and other purposes. Available at www.epa.gov/otaq/stateresources/transconf/policy.htm#models.

“Technical Guidance on the Use of MOVES2010 for Emission Inventory Preparation in State Implementation Plans and Transportation Conformity”: This document provides guidance on appropriate input assumptions and sources of data for the use of MOVES2010 in SIP submissions and regional emissions analyses for transportation conformity purposes. Available at www.epa.gov/otaq/models/moves/index.htm.

“Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas”: This document explains how to use MOVES2010 to complete hot-spot analyses required for projects of local air quality concern in PM_{2.5} and PM₁₀ nonattainment and maintenance areas. This guidance is presently under development. When it is available, it will be posted on the EPA’s transportation conformity policy guidance website (www.epa.gov/otaq/stateresources/transconf/policy.htm). EPA will be making a draft available for public comment prior to finalizing this guidance.

- Q9. How do MOVES2010’s inputs and outputs compare to EPA’s previous mobile source emission models?
- A9. Unlike EPA’s previous mobile source emission models, MOVES2010 has a graphical user interface (GUI) which allows users to more easily set up and run the model. More fundamentally, it has been designed to do calculations with information in databases, using the open source database management software known as MySQL.

The database-centered design provides users much greater flexibility regarding output choices. Unlike earlier models which provided emission factors in grams-per-mile in fixed output formats, MOVES2010 output can be expressed as total mass (in tons, pounds, kilograms, or grams) or as emission factors (grams-per-mile and in some cases grams-per-vehicle). Output can be easily aggregated or disaggregated to examine emissions in a range of scales, from national emissions impacts down to the emissions impacts of individual transportation projects.

The database-centered design also allows EPA to update emissions data incorporated in MOVES2010 more easily and will allow users to incorporate a much wider array of activity data to improve estimation of local emissions. For example, the improvements in MOVES2010 will allow project-level PM_{2.5} and PM₁₀ emissions to be estimated.

Q10. How does MOVES2010 compare to previously released drafts of MOVES?

- A10. The first draft release in the MOVES generation of mobile source emission models – MOVES2004 – was a proof-of-concept model that only looked at two aspects of mobile source activity: energy consumption and GHG impacts. MOVES2004 was followed by the MOVES Demo model, which was released in May 2007. MOVES Demo allowed potential users to gain familiarity with what would be the basic structure for subsequent iterations of the model but included only placeholder values for emission rates. MOVES Demo was released to get comments from likely users on the user interface and other model functions. With the release of Draft MOVES2009 in April 2009, EPA provided a more refined version of the model for likely users to test and comment upon.

In response to the comments received regarding Draft MOVES2009, EPA has made many improvements to the model. For example, MOVES2010 runs faster. It includes an improved emission rate calculator that provides “lookup table” results for starts and evaporative emissions as well as exhaust emissions. It eases entry of local fuels, heavy-duty reflash parameters, and other user inputs. MOVES2010 includes the ability to model new pollutants and precursors (sulfur dioxide, ammonia, nitrogen dioxide, and nitric oxide) and includes estimates of emissions from motorcycles. EPA has also expanded the capabilities of MOVES2010 for project-level analyses by including a graphical user interface for such analyses.

EPA also made emission rate improvements based upon newly available data and the comparisons of Draft MOVES2009 results to real-world emission measurements. These changes include improved estimates of emissions from heavy-duty trucks and older light-duty vehicles, as well as improved estimates of emissions at high speeds and accelerations. Because of these changes, inventories and emission rates generated by MOVES2010 will differ from those generated using Draft MOVES2009.

Q11. How do MOVES2010 emission estimates compare to those of MOBILE6.2?

- A11. As part of its own internal testing, EPA performed a preliminary comparison of MOVES2010 to MOBILE6.2 using approximate local data for several different urban

counties, each with its own fleet age distribution, fraction of light- and heavy-duty vehicle miles travelled (VMT), local fuel specifications, meteorology, and other input factors. The differences between MOVES2010 and MOBILE6.2 found in this analysis are described below, by criteria pollutant. Actual results will vary based on local inputs in a given area, with local variations in the fleet age distribution and composition having a significant influence on the final results.

For volatile organic compounds (VOCs): For all the urban counties modeled, mobile source VOC emissions were lower using MOVES2010 than previously estimated using MOBILE6.2. This difference is most noticeable for Tier 1 and newer vehicles, especially for evaporative emissions.

For oxides of nitrogen (NOx): Emissions from both light- and heavy-duty trucks are higher than previously estimated. Using MOVES2010 and assuming no change in extended idle activity as a fraction of total activity, EPA projects that uncontrolled extended idle emissions from heavy-duty vehicles will become a significant share of the on-road mobile source NOx inventory in the future. In some urban areas of the country, in fact, extended idle emissions could comprise approximately one quarter of total heavy-duty NOx emissions by 2020. This increase in the fraction of overall emissions represented by idling emissions is due to the fact that new heavy-duty vehicle standards are driving down regular exhaust emissions, making the idle fraction bigger by comparison.

For PM2.5: EPA's estimate of mobile source PM2.5 emissions using MOVES2010 is significantly higher compared to MOBILE6.2 for both light- and heavy-duty vehicles and for all of the urban areas modeled. For passenger cars and light trucks, these increases are based on data developed as part of EPA's Kansas City study, which showed much higher PM2.5 emissions at low ambient temperatures than previously known. For heavy-duty trucks, MOVES2010 incorporates new data from a large study of trucks conducted by the Coordinating Research Council (known as the CRC E-55 study) which includes deterioration effects on in-use emissions. MOVES2010 also models the impact of vehicle speed and load on PM emissions, showing very high rates of PM generation in stop-and-go traffic conditions. This high emission rate consists of the emissions produced while the engine is under increased load while accelerating (i.e., the "go" phase of stop-and-go driving) as well as the emissions produced while the vehicle is stopped and therefore not accumulating any mileage, thus resulting in higher overall emissions per total mile driven.

Q12. What sort of data did EPA use to improve its estimates of vehicle emissions?

A12. Over the last ten years, EPA's in-use data about technologies such as Tier 2, second-generation onboard diagnostics (OBD II), and enhanced evaporative emission control systems have dramatically improved. For MOVES2010, EPA has been able to carefully study these newer technologies, examining millions of results for light-duty vehicles. A detailed analysis of 70,000 vehicles in Arizona's I/M program provided information on how vehicles from the late-1990's and early 2000's age. Other I/M and remote sensing data and special purpose studies helped EPA to better understand trends in VOC, CO,

and NO_x emissions for light-duty cars and trucks. In reviewing these data, EPA found little change in CO from our original MOBILE6.2 projections, lower VOC emissions, and a noticeable increase in NO_x emissions.

Also in support of MOVES2010 development, the Agency conducted a landmark study of PM emissions, testing nearly 500 gasoline-fueled light-duty cars and trucks in Kansas City, Missouri. Due to the technical difficulties associated with measuring PM emissions, the Kansas City study – a collaborative effort including EPA, DOT, the Department of Energy (DOE), and the automotive and petroleum industries – is currently the largest such study ever conducted. The Kansas City study confirmed that PM emissions from light-duty gasoline-fueled vehicles are higher than earlier predicted, and clearly showed that cold ambient temperatures can dramatically increase PM start emissions. The MOVES2010 model includes these increases in PM start emissions at low temperatures.

EPA's understanding of emissions from heavy-duty vehicles has continued to improve since MOBILE6.2 was issued. Most earlier heavy-duty emission rates were based on certification tests of then-new, mid-1990's engines. For MOVES2010, EPA has been able to analyze data on more than 400 in-use trucks, some in the laboratory and some with on-road measurement equipment. This allowed the Agency to understand how real trucks pollute at a range of speeds and driving conditions. EPA also has been able to better incorporate emissions from heavy-duty diesel crankcase ventilation and from extended idling (also known as "hotelling") – two emission processes that were relatively unstudied at the time MOBILE6.2 was developed. The incorporation of this additional data accounts for the increases in heavy-duty NO_x and PM emissions reflected in MOVES2010. Emission differences in MOVES2010 are especially large for heavy-duty PM emissions because they reflect updated data on the effects of both speed and vehicle deterioration not previously available.

- Q13. How are the changes in MOVES2010 expected to affect I/M program credit?**
- A13.** In moving from MOBILE6.2 to MOVES2010 users will notice that the emission reductions estimated for individual I/M programs have gone down significantly between the two models. The magnitude of the difference depends upon the criteria pollutant and evaluation year being considered, the design of the I/M program, and local variables, such as fuel composition, average temperature, and the age distribution of the in-use fleet. The main reason for this reduced credit is the continuation of a previously observed trend toward improved, in-use vehicle durability first seen in MOBILE6.2 which is continued for MOVES2010. This is a "good news" story for the environment because it means that in-use, light-duty vehicles are continuing to stay cleaner longer than was previously thought to be the case. One side-effect of the continuation of this trend is that I/M programs (which reduce emissions by identifying cars in need of repair and getting them fixed) will continue to achieve less SIP credit than previously projected because there are fewer and fewer vehicles in need of repair than originally projected.

As part of its testing of MOVES2010, EPA modeled a typical I/M program including onboard diagnostic (OBD) testing on model year (MY) 1996 and newer vehicles and a

loaded-mode tailpipe test on MY1995 and older vehicles; this program was modeled for a 2008 evaluation year using both MOBILE6.2 and MOVES2010. For VOC and NO_x, MOBILE6.2 estimated emission reductions from this I/M program of roughly 12% and 17% respectively compared to the no I/M case while MOVES2010 estimated reductions of approximately 5% and 10% from the same I/M program compared to the no I/M case. In other words, for a typical I/M program in 2008, MOVES2010 estimated approximately 40-60% fewer reductions than originally projected by MOBILE6.2. The difference between the two models only grows as a user models later evaluation years because while MOBILE6.2 projects a steady increase in percent I/M reductions for both VOC and NO_x, MOVES2010 estimates a relatively constant 5% reduction in VOCs from I/M from 2008 through 2020, while it projects that NO_x reductions from I/M drop from approximately 10% in 2008 to 6% in 2020. It should be noted, however, that this comparison is for illustration purposes only. As indicated above, the results for individual I/M program areas will vary significantly due to local variables, such as the design of the I/M program, local fuel composition, average temperature, and the age distribution of the in-use fleet.

Q14. How are the changes in emission rates in MOVES2010 expected to affect attainment demonstrations?

A14. The answer to this question depends upon the unique circumstances of each nonattainment or maintenance area. The emission comparisons depend very heavily on the pollutants of concern, the dates of concern, and on existing local control measures, traffic patterns, fleet age, and the mix of cars and trucks. In some cases, a change from MOBILE6.2 to MOVES2010 may result in increased emissions estimates, while in other cases it may result in decreased emissions estimates for various time periods.

Moreover, because of the complex chemistry and meteorology involved in air pollution, the implications of changes in highway vehicle emissions may not be clear until multiple years are examined and the new emissions levels are applied in an air quality model. Relative differences in emissions over time from MOBILE6.2 to MOVES2010 may be as important as, or more important than, differences between the two models in any one year. Therefore, MOVES2010 users should not immediately assume that increases or decreases in emissions in any single year imply the need for more or fewer SIP control measures until those changes in emissions have been put in the complete SIP context.

When considering how the transition from MOBILE6.2 to MOVES2010 may affect attainment demonstrations, the relative reduction in emissions between a base year and an attainment year is often more important than absolute increases or decreases in emissions. To give users an illustration of how transitioning to MOVES2010 could potentially affect such demonstrations, EPA has performed a comparison of MOVES2010 to MOBILE6.2 using local data for several different urban counties, varying the local data used by fleet age distribution, fraction of light- and heavy-duty VMT, local fuel specifications, meteorology, and other input factors. This preliminary comparison indicates significantly larger relative reductions in PM_{2.5} using MOVES2010 compared to MOBILE6.2 for all of the urban areas modeled and lower relative reductions of NO_x. For VOCs, the results are

mixed, with MOVES2010 projecting higher relative reductions of VOCs in two out of three urban areas modeled, but lower relative reductions in at least one area. As the results for VOCs highlight, results will vary based on local inputs in a given nonattainment area, with local variations in fleet age distribution and composition having a significant influence on the final results.

An increase in emissions due to the use of MOVES2010 may affect an area's ability to demonstrate conformity for their transportation plan and/or transportation improvement program. Areas are encouraged, through the interagency consultation process, to consider if and how MOVES2010 may impact their future conformity determinations and discuss any concerns with the appropriate EPA Regional Office.

Q15. What do users need to know to run MOVES2010?

- A15. Users who have participated in the MOVES training offered jointly by EPA and FHWA or who have practical experience with running the model in the form of Draft MOVES2009 will find that, although some new features have been added, their experience will apply well to using the official MOVES2010. In addition, EPA plans to work with FHWA to offer another round of training in support of the release of MOVES2010, including both on-site and webinar-based training. Information concerning these additional training opportunities will be posted on EPA's mobile source model web page at www.epa.gov/otaq/models/moves/index.htm as they are scheduled.

Concerning other recommended training, knowledge of the MySQL database query language is not necessary for simple runs, but it will give users greater flexibility to customize MOVES2010 outputs to meet their needs. For more advanced analyses such as official SIP and/or conformity submissions, it is highly recommended that modelers develop in-house MySQL skills as soon as possible. MySQL training is commercially available from a variety of vendors.

Q16. What are the minimum system requirements for running MOVES2010?

- A16. EPA recommends the following minimum system specifications for running MOVES2010: processor – dual-core; memory – 1 GB RAM; storage – 40 GB; operating system: Windows XP or higher. As is often the case when running resource-intensive applications, a faster processor and more memory will allow MOVES2010 to perform user runs more quickly. See the “MOVES2010 User Guide” posted at <http://www.epa.gov/otaq/models/moves/index.htm> for more details on MOVES system requirements.



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January 6, 2010

Mr. David Snyder, Chairman
National Capital Region Transportation Planning Board
c/o Mr. Ronald Kirby, Director of Transportation Planning
Metropolitan Washington Council of Governments
777 North Capital Street, NW, Suite 300
Washington, D.C. 20002-4201

Re: Transportation Planning Process Certification Review

Dear Chairman Snyder:


The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) will be conducting a Certification Review of the transportation planning process for your metropolitan area on April 15, 19-21, 2010. These dates were selected in consultation with Ron Kirby, of your staff. The review will look at the cooperative planning process as conducted by the District, States, transit operators, and local governments in the area. You and all participants in the planning process are welcome to attend the review.

Certification reviews are conducted with the objective of evaluating the transportation planning process. Consequently, we will not be conducting a pass/fail review, but rather we intend to highlight good practices, exchange information, and identify opportunities for improvements. The Certification Process will rely extensively on knowledge gained throughout the year from routine contact with the planning process in the area, as well as the scheduled Certification Review meeting.

On April 15, 2010, the federal team will join the scheduled Citizens Advisory Committee meeting for an open dialogue concerning public participation and citizen involvement in the transportation planning process. On April 19-20, 2005, the federal team will meet with TPB members and staff to discuss organizational, policy, and technical issues. TPB staff will provide a brief overview and update on each topic, followed by a discussion involving all participating agencies. Finally, on April 21, 2010, the federal team will present their preliminary observations from the Certification Review to the TPB Board. The agenda for our on-site visit is forthcoming.

Should you have any questions regarding the Certification Review, please contact Sandra Jackson, of the FHWA District of Columbia Division, at (202) 219-3521, or Melissa Barlow of the FTA Washington, D.C. Metropolitan Office, at 202-219-3565.

Sincerely,



Pamela S. Stephenson
Acting Division Administrator
Federal Highway Administration

cc: Gabe Klein, District of Columbia Division of Transportation
John Catoe, Washington Metropolitan Area Transit Authority
Jo Anne Sorenson, Virginia Department of Transportation
Donald Halligan, Maryland Department of Transportation
Kwame Arhin, FHWA Maryland Division
Ed Sundra, FHWA Virginia Division
Brian Glenn, FTA Washington DC Metropolitan Office

REGISTERED
PROFESSIONAL ENGINEER

(703) 281-7533

Mr. David Robertson, Executive Director,
Metropolitan Washington Council of Governments,
777 North Capitol Street,
Washington, D.C. 20002

January 4, 2010

Dear Director Robertson:

I strongly protest the COG plan to approve a quarter billion dollar bus service expansion to "solve" our transportation and budget problems. It will do neither and will make both worse.

From 1983 to 1992, I was professionally employed locally in this activity. All my adult life, I have been employed in transportation. In 1978, the Urban Mass Transit Administration (now FTA) gave me their "Award for Distinguished Service to the Government". I may not always be right but I think I "know the ropes."

We have insufficient funding for our present system which is among the very best in all North America. It served about 575 passenger-miles per capita in 2009. Only New York, Toronto and maybe Bay Area can top that. We enjoyed a 53 % revenue-to-cost ratio. The national average is way below that. MetroRail moved people for 45 cents per passenger-mile, but MetroBus cost \$ 1.30 per passenger-mile for operating and maintenance expenses. We can not afford as much MetroBus service as we have. Ride-On buses in Montgomery County are not much better. Fairfax Connector buses do get the cost down a ways but not to MetroRail level. We must also reduce air pollution, but buses move only 33 passenger miles per gallon of fuel, MetroRail moves closer to 50 passenger-miles per gallon theoretically, but does not actually use oil to generate electricity. They use nuclear, coal, hydro, natural gas and now a bit of wind make MetroRail the clean air method of movement. Look at Arlington and Fairfax Counties where they consume only 300 gallons of motor fuel per capita. The District is about 350. I do not know about Montgomery County but Maryland is about 525 and Virginia 675. MetroRail is doing a heroic job but gets little credit.

On December 6, 2009, the Washington POST irresponsibly and erroneously said "the multi-billion dollar *expense* of building rail lines makes the bus network the more cost effective option." Nothing could be further from the truth. Building rail lines is NOT an expense. It is an INVESTMENT in future savings IF they are built in the right place. We have invested \$ 11 billion in the present MetroRail system. That investment is costing about \$ 275 million per year to amortize. That adds 17 cents per passenger-mile to MetroRail cost to make it total 62 cents per passenger-mile, far less than bus cost, BUT bus cost also must consider capital investment. Add 13 cents per passenger-mile for amortization and it totals \$ 1.38 per passenger-mile, more than double MetroRail cost. We can not possibly afford that.

Not only does it cost far too much but experience shows it is not productive. In 1949, Washington started to eradicate its profitable street railway system and it was politically destroyed by 1962. Just before MetroRail started up, air-conditioned, flexible modern MetroBus was down 70 % from what the street car and bus system carried before its demise. We must not repeat that mistake. MetroRail, MARC and VRE have increased that low ridership by 300 %.

WMATA proposes to greatly expand bus routes C-2, C-4, F-4, F-6, J-2 and J-4 in Maryland to cover the very same territory where Montgomery and Prince George's counties, COG and Maryland have approved The Purple Light Rail Line. How incompetent can we get? Where is the coordination? How can COG let this happen? Where is the money?

Over in Virginia, the Route 28X improvement on Leesburg Pike makes more sense. That will cost nothing and may save a few dollars and increase fare revenue. GO FOR IT! The same is not true for Route 16 on Columbia Pike bus expansion where the counties have already approved a new street car line to improve service, property values and air quality. The Federal Transit Administration reported that for 2007, Light Rail (which includes street cars) cost 60 cents per passenger-mile when MetroBus cost \$ 1.25, twice as much.

I will quickly concur that accelerated bus service will attract more riders and cut costs but not significantly. To speed up bus service with Proof-of-Payment fare collection, a significant increase in cost is incurred, almost offsetting the savings from any speed increase. This cost is already included in rail operating costs and is more than offset by the economics of train operation, not possible with buses.

The idea of super bus service on Highway US 1 in Fairfax County is not prudent nor feasible. A few years ago, VaDOT had a full formal study of US 1 and found Rapid Bus Transit was not feasible as it would reduce the capacity of the highway to move people. Despite a petition for Light Rail from a reported 1,000 people, the consultant ignored Light Rail because "population density was too low". Not only was that irrelevant but now the BRAC realignment has changed the ridership potential to even more favor Light Rail. The Fairfax County Coalition for Smart Growth published a paper showing how Light Rail could do the most good at the lowest cost but officials have yet to consider it. By using the median, Light Rail can avoid some of the problems of bus service conflict with auto travel. Bus service can not use the median as it is not wide enough nor is bus service economical enough.

Putting souped up new bus service on the Dulles Toll Road and I -66 is absolutely contrary to plans and approved projects for the Silver MetroRail Line and Light Rail from Dulles Corner to Chantilly, Centreville and Manassas which should also serve I-66 from Centreville to Vienna. It will be far less costly to operate three-car Light Rail trains than eight-car MetroRail trains in peak hours and two-car Light Rail trains instead of six-car MetroRail trains off peak.

Putting hundreds of millions of dollars we do not have into Shirley Highway Bus Rapid Transit is also a waste of money we do not have. COG itself published a chart showing how Shirley BusWay lost 67 % of its riders from 1982 to 1996, just before MetroRail opened to Springfield. The year after MetroRail opened there, ridership had increased 500 %. That is not 50 %, it is 500 %. Operating cost per passenger had gone down. That is what we need to do.

I have had some experience with Bus Rapid Transit. I was the state officer who helped fund the South BusWay in Pittsburgh. It promised 32,000 weekday passengers, up 71 % from initial conditions. It peaked at 20,750 during the Second energy crisis up only 11% but is now down to only 10,000, a loss of 47 % from pre-BusWay. Two Light Rail lines in that same corridor gained 50 % from 1986 to 1992. That ought to tell planners something. Pittsburgh is not unique. Los Angeles built the half-billion dollar Harbor Freeway Busway to carry 62,000 weekday passen-

gers but it has never done much better than 3,300, the greatest bus failure I know of. A parallel Light Rail Line five miles to the east carried 55,000 weekday passengers when the BusWay estimate was made but with *flexibility*, planners assumed the bus would out-do Light Rail. NOT SO. The Light Rail travel grew 44 % to 79,000 as the BusWay failed to attract many at all. Executive Director Roger Snoble, of the Los Angeles County Metropolitan Transit Authority, publically stated he was forced to invest a Billion dollars in improved bus service that attracted no new passengers at all. The record is slightly different. In 1997, LACMTA moved 1.5 billion annual passenger-miles and in 2007, it it moved 2 billion, but the bus portion increased only 19 % while the electric rail portion increased 152 % and at lower operating cost, by 17 %

More recently, from 2006 to 2008, buses in L.A., with more BRT, lost 3 % of its passenger-miles, despite \$ 4 gasoline, while rail gained 9 %. In those same years in Washington, buses gained 2 % and rail gained 6 %. We did better than L.A. Both systems approximated 2 billion annual passenger-miles, but Washington has much less population to draw from.

MetroRail is NOT overcrowded. It sure looks that way to jammed-in passengers, but people must understand, and Metro must understand that when a Red or Orange train is half-a-minute late at 5:pm or 8:am. it will be 22 % overloaded. If a peak train is half-a-minute early, it will overload the next train. Sharp, on-time performance is the key, not wasted money on unaffordable bus service. Bus service suffers the same problem. Late buses will, automatically, be overloaded in the peak. MetroBus is not overloaded overall. It averages only 12 passenger-miles per bus-mile, compared to 14 in Baltimore and 16 in Los Angeles, but on-time bus service is very difficult to achieve when roads are crowded and / or headways are short.

The Transportation Research Board, in Special Report #1221 of 1989 makes this point very clear. It found that if rail and bus service is approximately equal as to fares, speed, headway and routing, rail will attract from 35 % to 43 % more riders than equivalent bus service. Since rail is also less costly, IF put in the right place, the issue is clear. Build rail transit, not rapid bus.

If you, or your staff, want to grill me about this, I will be pleased to come in and submit to cross examination. I will produce any supporting data you wish to see. These are not my opinions, but the facts of life. We must face the facts. It is insane to do the same thing over again and expect a different result. Just remember, we already have one of the best transit systems going. We must improve it cost-effectively, not downgrade it.

Respectfully submitted,



cc: Hon. C.M. Hudgins

