



# City of Richmond

## Report to Committee

**To:** General Purposes Committee **Date:** August 29, 2011  
**From:** Cecilia Achiam, MCIP, BC:SLA **File:** 10-6000-01/2011-Vol 01  
Interim Director Sustainability and District Energy  
Senior Program Manager, CPMG  
**Re:** **City of Richmond Comments On Metro Vancouver's Integrated Air Quality and Greenhouse Gas Management Plan – Implementation Matrix**

### Staff Recommendation

That **Attachment 1** to the staff report from the Interim Director of Sustainability and District Energy be endorsed and forwarded to Metro Vancouver as comments on the *Metro Vancouver Draft Integrated Air Quality and Greenhouse Gas Management Plan - Implementation Matrix*.

Cecilia Achiam, MCIP, BC:SLA  
Interim Director Sustainability and District Energy  
Senior Program Manager, CPMG

Atts. 3

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Policy Planning	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
Transportation	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
Environmental Sustainability	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
Fleet Services	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
<b>REVIEWED BY TAG</b>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	<b>REVIEWED BY CAO</b>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

## Staff Report

### Origin

Metro Vancouver has requested comments from member municipalities on the Draft Integrated Air Quality and Greenhouse Gas Emission Plan – Implementation Matrix. This report addresses this request and the following Council Term Goal:

*Council Term Goal #7: "Sustainability and the Environment – Demonstrate leadership in and significant advancement of the City's agenda for sustainability through the development and implementation of a comprehensive strategy that among other objectives includes incorporating sustainability into our City policies and bylaws".*

### Background

#### About the Air Quality and Greenhouse Gas Emission Management Plan

Metro Vancouver has the delegated authority, under Provincial legislation, to manage air quality in the region and has prepared air quality management plans in 1994 and 2005 to guide their air quality services. Metro Vancouver is currently updating their 2005 plan. The draft 2011 plan continues to advance the three core goals set out in the 2005 plan:

- Protect public health and the environment from air pollution
- Improve visual air quality
- Minimize the region's contribution to global climate change.

The draft plan proposes greater collaboration with other agencies and organizations, including member municipalities. A draft Implementation Matrix (**Attachment 2**) has been prepared that provides a summary of all the actions proposed. The Matrix outlines roles for Metro Vancouver and proposes participatory roles for other organizations, including member municipalities. Metro Vancouver has requested comment on the draft Implementation Matrix<sup>1</sup>.

#### Trends in Air Quality Pollutants and Greenhouse Gas Emissions

According to Metro Vancouver, the Lower Mainland currently experiences good regional air quality relative to most urban areas in North America. Decreasing trends for many pollutants indicate that efforts to reduce air contaminants have been relatively successful over the past 20 years. Greenhouse gas emissions, however, have continued to increase.

Despite improvements, Metro Vancouver's assessments indicate that emissions of many pollutants, including those that have been decreasing, are projected to increase in the future as a result of projected increases in population, agricultural activity and transportation. Greenhouse gas emissions increases are also projected to continue.

<sup>1</sup> An earlier draft of the entire 2011 Plan is available at:  
<http://www.metrovancouver.org/services/air/management/ReviewProcess/Pages/default.aspx>

## Analysis

### Assessment of Proposed Actions

#### 1. *Implications for Municipal Resources*

The draft Implementation Matrix seeks to develop a collaborative-based pathway for advancing action to support a healthy airshed and reduce impacts to the climate. To this end, the Matrix proposes action that includes suggested participation from member municipalities, senior levels of government, utilities and other agencies.

The majority of the action proposed is to be led by Metro Vancouver. Of the 82 action items suggested, 32 are being proposed to include municipal involvement (28 actions propose municipal involvement with another agency lead and 4 actions are being proposed to be led or co-led by municipalities). A summary of those actions proposing municipal involvement is provided in **Attachment 3**.

There is no requirement for member municipalities to participate in the development or implementation of this plan. The decision to be involved and to what extent is completely up to each member municipality. Many of the actions include the phrase “Municipalities to consider” that makes it explicit that involvement is voluntary, however some phrases are not explicit. It is recommended that the draft Implementation Matrix be amended in order that all actions seeking municipal involvement include the above phrase for both consistency and clarity.

#### 2. *Support for Municipal Interests*

It is noted that some of the proposed actions have a high potential to support municipalities in meeting their local interests. For example, the proposed action to establish a Climate Action Fund may support municipalities in meeting their legislative obligations under Bill 27 which requires that local governments establish greenhouse gas (GHG) emissions targets, policies and actions in their OCP. The City of Richmond has adopted GHG emission reduction targets of 33% from 2007 levels by 2020 and 80% by 2050. Achieving these targets is dependent upon strong action by various levels of government, businesses and residents.

Limited resources are a key challenge in advancing the level of action necessary to meet emission reduction targets. Working together to establish a dedicated funding source for GHG emission reduction initiatives could set a strong foundation for enabling regional and local communities to take the needed action.

#### 3. *Identification of Priorities*

The draft 2011 Plan has significantly expanded the number of action items from the previous 2005 Plan (increasing from 33 to 82 action items). To support member municipalities in determining their involvement, it is recommended that the draft Implementation Matrix be amended to include a general description of expected benefits from each action item and their relative level of priority (e.g., high, moderate, low). This additional information would mean that member municipalities could evaluate the proposed benefits of their involvement and best ensure that limited municipal resources are directed towards actions of highest importance. (This would include not participating in any of the actions if other priorities were deemed to be of higher importance).

#### 4. *Clarity on Implementation Process*

It is recommended that the draft Implementation Matrix be revised to provide clarity on the process for implementation, including both institutional structure, progress reporting and plan review. In order for municipalities to conduct a meaningful cost/benefit analysis and properly assess value of participation, it is important that the matrix outline the proposed process (e.g., monthly meetings of an interagency committee, etc.). This would enable involved parties to continually assess action effectiveness and make refinements to optimize value. Effectiveness of implementation will ultimately depend upon the level of resources, and in particular fiscal resources, available for advancing action. It is recommended that the draft Implementation Matrix be amended to include clarification on what fiscal resources would be directed toward action implementation.

#### 5. *Climate Change Adaptation*

The draft Implementation Matrix identifies a number of actions to reduce emissions of greenhouse gases. This is an important area of focus in order to reduce the impacts of projected climate change. However, international scientists advise that not all levels of climate change can be averted and that implementing action to adapt to unavoidable climatic changes is a societal priority. Richmond staff have participated on a Metro Vancouver committee tasked with supporting the development of a regional climate change strategy. Early working drafts included both GHG emission reduction and climate change adaptation. The current draft Implementation Matrix does not include any dedicated action towards adaptation. It is recommended that Metro Vancouver review where climate change adaptation should be incorporated.

### **Recommended City of Richmond Comments**

Proposed comments, based on the assessment above, are provided in **Attachment 1** and are summarized as follows:

- the City of Richmond is in general support of the draft Implementation Matrix given the understanding that local government participation is voluntary;
- a greater focus be placed on identifying and advancing strategic priorities and that the draft Implementation Matrix be revised to include a general description of expected outcomes and assessment of relative importance of proposed action;
- clarification be provided on the process for advancing collaborative-based action, including both proposed institutional frameworks (e.g., multi-agency committee, etc.) and fiscal resources for implementation; and,
- the issue of climate change adaptation be addressed.

### **Financial Impact**

None.



**Conclusion**

Metro Vancouver is updating their Air Quality and Greenhouse Gas Management Plan and have requested comments from the City of Richmond on a draft Implementation Matrix that identifies proposed action and seeks participation from multiple agencies, including member municipalities. Staff recommend that **Attachment 1** be endorsed and forwarded to Metro Vancouver as comments on the draft Implementation Matrix.



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**City of Richmond: Recommended Comments on Metro Vancouver's Draft Integrated Air Quality and Greenhouse Gas Management Plan (IAQGGM) – Implementation Matrix**

**1. General Support for Implementation Matrix**

The City of Richmond supports action to result in a well-managed airshed that reduces risks from air pollutants and reduces contributions to climate change. The City acknowledges that whereas air quality is the legislative responsibility of Metro Vancouver, reducing greenhouse gas emissions requires collaborative action across all sectors of society. The City of Richmond has adopted targets for reducing greenhouse gas emissions and is supportive of pursuing action that provides best value. Based on the understanding that involvement is voluntary and that municipalities can determine what, if any action, to participate in, the City of Richmond is in general support of the proposed Implementation Matrix.

**2. Requested Amendments**

*i. Further Clarification that Municipal Involvement is Voluntary*

The City of Richmond requests that the Implementation Matrix be amended to explicitly acknowledge that:

- Metro Vancouver is responsible for meeting its legislative responsibilities for air quality management under the Environmental Management Act and for the overall implementation of the Plan;
- the involvement of municipalities is voluntary and that the decision to be involved and to what degree in any specific action is the sole decision of each municipality;
- that all actions involving municipalities be phrased “municipalities to consider”.

*ii. Identification of Priorities*

There are many actions included in the proposed Implementation Matrix. It is noted that the number of actions have increased from 33 in the 2005 Plan to 82 actions in the proposed 2011 Plan. There are also many actions identified in other important Metro Vancouver plans (e.g., Solid Waste Management Plan, Liquid Waste Management Plan, Food Security Strategy, Ecological Health Plan, etc.) which require or seek municipal involvement. In addition, member municipalities have many plans and action agendas of their own. Given that not all fronts can be addressed simultaneously and that it is important that resources be directed towards areas of highest importance, the City recommends that the Implementation Matrix in the draft Air Quality and Greenhouse Gas Management Plan be amended to inform municipalities of expected outcomes from each proposed action item and delineate priorities. This information would enable municipalities to properly evaluate the merit of their involvement in each of the proposed actions and make an informed decision about their level of participation.

### *iii. Implementation Process*

While proposing roles and timelines, the draft Implementation Matrix does not delineate how actions will be implemented. In particular, details are missing on how coordination and collaboration will occur among member municipalities and other proposed involved parties. The City of Richmond supports an efficient, well-coordinated process that focuses on delivery of action. The City requests that the Implementation Matrix be amended to include details on the process for implementation (e.g., monthly meetings of an interagency working group, etc.). The City also requests that dedicated funds be allocated to support effective implementation and that the draft Implementation Matrix be amended to identify intended level of fiscal support.

### *v. Incorporation of Adaptation*

The City of Richmond requests that Metro Vancouver advance specific action for addressing projected impacts from greenhouse gas emissions. It is noted that Metro Vancouver had been developing a regional Climate Change Strategy that addressed both climate change mitigation (i.e., greenhouse gas emission reduction) and adaptation (i.e., managing the impacts from greenhouse gas emissions). These were preliminary in nature and were never brought forward for Board approval. Whereas greenhouse gas emission reduction has been incorporated into the Air Quality and Greenhouse Gas Management Plan, managing the impacts from those emissions (i.e., climate change adaptation) have not been included.

**\*\*Preliminary Draft for Discussion Only\*\***

As directed by Metro Vancouver's Environment and Energy Committee, MV staff will develop a matrix in consultation with municipal staff, to determine resource implications to municipalities. A version of this matrix will be provided to the Committee on September 12th, 2011. It should be recognized that the IAQGMP is a strategic-level plan. As such, it is not feasible to fully assess the costs and benefits of implementing the plan's actions at this point in time. Some of the plan's strategies will require significant policy shifts, and others will require the allocation of financial resources outside of Metro Vancouver's budgets. In these situations, Metro Vancouver staff will consult with the appropriate stakeholders and present a more detailed assessment to the Board for consideration. It is intended that this matrix will be a living document, updated as more precise information becomes available.

Strategy	Action	Roles				Potential Resources			Possible Duration of this Action						
		MV	Muni	Prov	Fed	Others	Metro Vancouver	Municipal	Other	2011	2012	2013	2014	2015	2016
Strategy 1.1 Reduce emissions of and public exposure to diesel particulate matter	1.1.1	Lead		Partner	Partner		MV staff time for project management and consulting resources (options paper)		Funding will be requested from senior governments						
	1.1.2	Lead		Partner			MV staff time for bylaw administration and enforcement		Additional funding sources will be explored	..					
	1.1.3	Partner		Partner		Partner	MV staff time to participate on this steering committee		Potential resource implications for provincial government						
	1.1.4	Lead	Partner	Partner		Partner	MV staff time for organization of a few workshops and consulting resources	Municipal staff time for a few workshops	Health authorities staff time for a few workshops. Translink staff time	..					
	1.1.5	Partner		Partner	Co-lead	Co-lead	MV staff time to participate in this working group		Potential resource implications for Federal government, port and marine stakeholders	..					
	1.1.6	Co-lead		Partner	Partner	Co-lead	MV staff time to co-chair this working group		Potential resource implications for Federal and Provincial government	..					
	1.1.7			Co-lead	Co-lead		MV staff time to liaise with the Federal and Provincial Government		Potential resource implications for Federal and Provincial government	..					



Strategy	Action	Roles					Potential Resources			Possible Duration of this Action					
		MV	Muni	Prov	Fed	Others	Metro Vancouver	Municipal	Other	2011	2012	2013	2014	2015	2016
	1.1.8	Provincial government to introduce an early retirement vehicle program for heavy-duty diesel vehicles, similar to the BC SCRAP-IT* Program, which provides incentives for truck drivers to replace higher-polluting vehicles with newer, cleaner units.		Lead			MV staff time to liaise with the Provincial Government		Potential resource implications for Provincial government						
	1.1.9	Federal Government to expedite the adoption of more stringent non-road engine and fuel emission standards to further reduce diesel particulate matter and greenhouse gas emissions.			Lead		MV staff time to liaise with the Federal Government		Potential resource implications for Federal government						
	1.1.10	Federal Government to enforce the International Maritime Organization's Annex VI protocol which contains air emission regulations, including more stringent Emission Control Area standards for marine vessels in Canadian waters.			Lead		MV staff time to liaise with the Federal Government		Potential resource implications for marine operators and the Federal government						
	1.1.11	Federal Government to adopt and enforce regulations that require the implementation of stringent operational practices for the rail sector, such as railyard idling limits and mandatory technology requirements.			Lead		MV staff time to liaise with the Federal Government		Potential resource implications for rail operators and the Federal government						
	1.1.12	Municipalities to consider potential air quality impacts of land use planning decisions by utilizing the land use planning and urban design guidelines to be collaboratively developed under Action 1.1.4.	Partner	Lead*			MV staff will provide staff support with respect to the implementation of the guidelines in Action 1.1.4 and possible bylaw changes (e.g. setbacks or urban design requirements)	Municipal staff time to consider implementation of guidelines in Action 1.1.4 and possible bylaw changes (e.g. setbacks or urban design requirements)							
	1.2.1	Deliver a fair, effective and efficient regulatory program and follow the guideline of continuous improvement, to minimize emissions, adverse health impacts and environmental degradation.	Lead				MV staff time for administration, enforcement and development of new regulatory measures as needed			...					
	1.2.2	Continue to develop and implement local air quality action plans to address neighbourhood air quality priority areas, in partnership with other governments, industry and other interested parties.	Lead	Partner*	Partner	Partner	MV staff time for project development, data collection and analysis. Resources will depend on scope. MV can conduct 2 special studies per year with existing resources. Additional resources will be required for > 2 studies per year.	Small amount of municipal staff time for project scoping and possible action plan development	Potential resource implications for the responsible emission source(s)	...					

Strategy	Action	Roles					Potential Resources			Possible Duration of this Action					
		MV	Muni	Prov	Fed	Others	Metro Vancouver	Municipal	Other	2011	2012	2013	2014	2015	2016
Strategy 1.2. Reduce air contaminant emissions from industrial, commercial, institutional (ICI) and agricultural sources at both the regional and local level	1.2.3 Investigate and implement additional targeted measures to address emissions of contaminants (e.g., volatile organic compounds, ammonia, nitrogen oxides and sulphur oxides) that contribute to ground-level ozone and secondary fine particulate matter concentrations, in partnership with other governments, industry, academia and other interested parties.	Lead		Partner	Partner	Partner	MV staff time to investigate and implement measures Additional resources may be required depending on scope		BC MoE, FVRD and other partners staff time	...					
	1.2.4 Develop and implement an odour management program including an odour management regulation that addresses key sources of odorous emissions, and effective complaint management and communications processes.	Lead	Partner*			Partner	MV staff time to investigate and implement measures	Small amount of municipal staff time for program development process	Potential resource implications for businesses	...					
	1.2.5 Develop and promote the adoption of best management practices for local businesses, such as the construction/demolition industry and restaurants, including the use of solvents and solvent-containing products.	Lead				Partner	MV staff time to develop and promote BMPs		Potential resource implications for businesses						
	1.2.6 Federal Government to expedite ICI emission reduction programs which support continuous improvement (e.g., reductions in the volatile organic compound content in consumer and commercial products).				Lead	Partner	MV staff time to liaise with the Federal Government		Potential resource implications for Federal government	...					
	1.2.7 Northwest Clean Air Agency and Washington State Department of Ecology to continue to involve Metro Vancouver in the review of new industrial proposals and permit amendments as per the 1994 Interagency Agreement and require relevant facilities to upgrade to the best available technology whenever feasible.					Lead	MV staff time to liaise with NWCAA and WSDOE		No new resource implications for NWCAA or WSDOE	...					
	1.2.8 B.C. Ministry of Agriculture and B.C. Ministry of Environment to continue developing beneficial management practices to reduce emissions of particulate matter, ammonia, greenhouse gases, and odours from agricultural operations, in collaboration with the B.C. Agriculture Nutrient and Air Working Group.			Lead		Partner	Small amount of MV staff time to assist with BMP development		Potential resource implications for provincial government Small amount of staff time for FVRD	...					
	1.2.9 B.C. Ministry of Agriculture to continue encouraging farmers/producers to adopt beneficial management practices that will reduce emissions of particulate matter, ammonia, greenhouse gases and odours from agricultural operations.			Lead		Partner	MV staff time to liaise with BC Ministry of Agriculture		Potential resource implications for provincial government and the agricultural industry	...					
	1.3.1 Work with partners to enhance residential wood smoke emission reduction programs such as the wood stove exchange program, wood heat workshops, and other education and outreach initiatives.	Lead			Partner		Partner	MV staff time to increase exchanges and public awareness		Potential funding from Provincial government Involve other partners such as BC Lung Association, FVRD and the Wood Energy Technicians of BC	...				



Strategy	Action	Roles					Potential Resources			Possible Duration of this Action					
		MV	Muni	Prov	Fed	Others	Metro Vancouver	Municipal	Other	2011	2012	2013	2014	2015	2016
Strategy 1.3 Reduce air contaminant emissions from residential sources	1.3.2 Work with municipalities, health authorities, fire departments and other partners to explore regulatory options that will reduce residential wood smoke emissions.	Lead	Partner*			Partner	MV staff time to explore regulatory options	Municipal staff time to explore options	Health Authority and fire department staff time to explore options	...					
	1.3.3 Explore incentives to encourage the removal of residential fuel oil devices where lower emission and more efficient options are available.	Lead	Partner				MV staff time to explore options	Small amount of staff time to explore options							
	1.3.4 Investigate options and introduce mechanisms to reduce emissions from open burning.	Lead	Partner	Partner			MV staff time to explore options	Municipal staff time to explore options	Provincial government staff time to explore options						
	1.3.5 Promote programs, such as the "Mow Down Pollution" program, that encourage residents to exchange their old gas-fired lawn, garden and other household equipment for lower emission models.	Lead				Partner	MV staff time to promote resident programs		Home Depot runs the Mow Down Pollution program						
	1.3.6 B.C. Ministry of Environment to explore regulatory and non-regulatory options to address residential wood burning and fuel oil devices at point of sale.			Lead		Partner	MV staff time to liaise with BC Ministry of Environment		Potential resource implications for provincial government						
									Resource implications for the provincial government and AirCare						
Strategy 1.4 Reduce air contaminant emissions from cars, trucks, and buses	1.4.1 Work with the provincial government, AirCare and the Fraser Valley Regional District to design and implement more effective and user-friendly emission inspection and maintenance programs for the most polluting light and heavy-duty vehicles.	Lead		Partner		Partner	MV staff time		Small amount of staff time for FVRD						
	1.4.2 Assist municipalities with adoption of Metro Vancouver's model anti-idling bylaw and education campaigns.	Lead	Partner*				MV staff time to provide support	Municipal staff time for bylaw adoption, enforcement and/or education		...					
	1.4.3 TransLink to work with Metro Vancouver and municipalities to develop: a) regional air quality targets and supporting implementation strategies for inclusion in regional long-range transportation plans; and b) air quality guidelines to optimize facility locations and fleet technology.	Partner	Partner			Lead	MV staff time for target, strategy and guideline development process	Municipal staff time for target, strategy and guideline development process	Resource implications for TransLink						
	1.4.4 Municipalities to develop idling reduction programs, including consideration of adopting Metro Vancouver's model anti-idling bylaw.	Partner	Lead*				MV staff time to provide support	Municipal staff time for bylaw adoption, enforcement and/or education		...					
	1.5.1 Work with partners to create a proactive adverse air quality episode mitigation program by developing voluntary and mandatory emissions reduction actions for municipalities, industry, businesses and residents, to be taken during air quality advisory periods.	Lead	Partner	Partner	Partner	Partner	MV staff time for the development of episode mitigation program	Small amount of municipal staff time to implement short term emission reductions	Potential short-term resource implications for industry and businesses						
	1.5.2 Improve coordination with health authorities on air quality issues, including ensuring that adequate health protection information is available to the public during air quality advisories.	Lead				Partner	MV staff time to coordinate air quality advisories		Health Authority staff time	...					

## Attachment 2

Strategy	Action	Roles					Potential Resources			Possible Duration of this Action						
		MV	Muni	Prov	Fed	Others	Metro Vancouver	Municipal	Other	2011	2012	2013	2014	2015	2016	
Strategy 1.3 Increase public understanding of air quality issues and public engagement in clean air programs	1.3.3 Work with the provincial government and other partners (such as health agencies, municipalities, non-government organizations) to create locally-relevant air quality and climate change materials for use by teachers and student environmental groups.	Lead	Partner	Partner		Partner	MV staff time to develop and collaborate with others	Small amount of municipal staff time to coordinate messaging	BC Ministry of Education and Ministry of Environment staff time							
	1.3.4 Develop and implement a communications strategy to engage audiences which have been less accessible through Metro Vancouver's existing air quality outreach programs.	Lead					MV staff time and advertising resources									
	1.3.5 Pursue the development of an Air Quality and Climate Change Academy, in partnership with academic institutions and other partners, which will enhance air quality and climate change research, formal education, and public outreach within the region.	Lead	Partner			Partner	MV will host visioning sessions and consulting resources	Small amount of municipal staff time for visioning	May have resource implications for academic institutions and other partners							
Strategy 2.1 Reduce emissions of air contaminants and precursors that can degrade visual air quality	2.1.1 Investigate and implement measures that will reduce ammonia emissions in the Lower Fraser Valley aired in partnership with other governments.	Lead		Partner	Partner		MV staff time to investigate options		Provincial government, federal government and FVRD staff time to explore options	..						
	2.1.2 Investigate and implement measures that will reduce fine particulate to levels that improve visual air quality.	Partner		Partner	Partner		MV staff time to investigate options		Provincial government, federal government and FVRD staff time to explore options	..						
	2.1.3 Implement actions under Strategy 1.1 to reduce emissions of diesel particulate matter and Strategy 1.3 to reduce wood smoke emissions.	Lead		Partner	Partner	Partner	MV staff time to investigate options		Provincial government, federal government and FVRD staff time to explore options	..						
	2.1.4 B.C. Ministry of Agriculture to continue encouraging farmers/producers to adopt beneficial management practices that will reduce fine particulate matter and ammonia emissions from agricultural operations as per Action 1.2.8.			Lead		Partner	MV staff to liaise with BC Ministry of Agriculture		Potential resource implications for provincial government and the agricultural industry	..						
	2.2.1 Enhance monitoring and reporting of visual air quality conditions.	Co-Lead		Partner	Co-Lead	Partner	MV staff time to site and maintain monitors, and maintain www.clearairbc.ca website		Federal government staff time to site and maintain monitors and collect images	..						
Strategy 2.2 Develop a visual air quality pilot project, which includes: a) developing a visual air quality index and a measurable visual air quality improvement target, b) engaging interested parties and the public in improving visual air quality, c) identifying potential visual air quality management approaches, and d) evaluating visual air quality management options.	2.2.2 Implement a visual air quality pilot project, which includes: a) developing a visual air quality index and a measurable visual air quality improvement target, b) engaging interested parties and the public in improving visual air quality, c) identifying potential visual air quality management approaches, and d) evaluating visual air quality management options.	Co-Lead		Co-Lead	Partner	Partner	MV staff time to develop and coordinate initiatives		Provincial government staff time to develop and coordinate initiatives	..						

## Attachment 2



Strategy	Action	Roles					Potential Resources			Possible Duration of this Action					
		MV	Muni	Prov	Fed	Others	Metro Vancouver	Municipal	Other	2011	2012	2013	2014	2015	2016
quality management program for the Lower Fraser Valley airshed in partnership with other government agencies	2.2.3	Partner		Partner	Lead	Partner	MV staff time to maintain monitors and develop emission inventories		Fed government staff time to analyse data and undertake scenario modelling BC Ministry of Environment and FVRD to support visual air quality improvement initiatives	...					
	2.2.4				Lead		MV staff time to liaise with Health Canada		Health Canada to provide health benefit information	...					
	2.2.5			Lead		Partner	MV staff time to liaise with BC MoE and FVRD		BC Ministry of Environment and FVRD to support visual air quality improvement initiatives	...					
		Lead		Partner	Partner	Partner		See Strategies 1.1 and 1.3							
Strategy 3.1. Reduce emissions of short-lived climate forcers	3.1.1														
	3.1.2	Lead		Partner	Partner	Partner	See Actions 1.2.3, 1.2.6, 1.2.8, 1.2.9, and Strategy 1.4			See Actions 1.2.3, 1.2.6, 1.2.8, 1.2.9, and Strategy 1.4					
	3.1.3	Co-lead	Co-lead*			Partner	Consistent with the Integrated Solid Waste and Resource Management Plan, MV staff time to develop and implement organics diversion projects including zero waste program. MV staff time to further develop methane capture at MV landfill sites. Additional capital expenditures will be determined as more detailed project plans are developed	Municipal staff time to develop organics collection programs as outlined in the ISWRMP and potential capital investment once programs are developed. Resources could be reallocated from traditional solid waste programs as savings are realized	Potential resource implications for private landfill operators						
	3.1.4	Partner	Partner*	Lead			MV staff time to liaise with Min of Agriculture and other partners	In municipalities with agriculture, staff time to liaise with Min of Agriculture and other partners	Potential resource implications for BC Ministry of Agriculture						

Attachment 2

Strategy	Action	Roles					Potential Resources		Possible Duration of this Action						
		MV	Muni	Prov	Fed	Others	Metro Vancouver	Municipal	Other	2011	2012	2013	2014	2015	2016
Strategy 3.2 Support the region's municipalities, businesses and residents to reduce their carbon footprints	3.2.1 Explore the establishment of a Regional Climate Action Fund (funded by a portion of the Provincial carbon tax, sale of carbon credits, other contributions from senior governments, or alternative financing mechanisms), and use those funds to implement a range of measures that will reduce regional greenhouse gas emissions and energy consumption.	Lead	Partner	Partner	Partner		MV staff time to work with partners to develop scope and Terms of Reference for the Climate Action Fund	Municipal staff time to provide municipal input into Terms of Reference for Climate Action Fund	Potential resource implications for the Provincial government						
	3.2.2 Work with municipalities to establish a regional carbon credit ownership protocol to clarify the process of assigning carbon credit ownership among local governments in the region.	Lead	Partner				MV staff time to liaise with municipalities on development of protocol on carbon credit ownership	Municipal staff time to liaise with MV on carbon ownership framework							
	3.2.3 Assess the region's low carbon energy (e.g., biomass, geothermal, etc.), waste heat recovery, and district energy opportunities and risks, and where appropriate work with municipalities to coordinate public and private investment in supporting infrastructure.	Co-lead	Co-lead*			Partner	MV staff time to conduct analysis of energy opportunities. Consultant resources for project planning. New capital expenditures will need to be determined through more detailed project planning	Municipal staff time in cases where joint MV-municipal projects would be mutually beneficial	BC Hydro and Fortis BC						
	3.2.4 Provide greenhouse gas management training for the region's small and medium-sized enterprises and link training to other related initiatives such as LiveSmartBC and the TransLink Travel Smart program.	Lead	Partner	Partner		Partner	MV staff time to evaluate 2010 and 2011 programs to determine Phase II model for future programs.	Municipal contribution would be determined on Phase II program model	Small amount staff time from LiveSmartBC	..					
	3.2.5 Develop a model procurement policy which includes greenhouse gas emission reporting requirements, and promote adoption by municipalities and businesses.	Lead	Partner			Partner	MV staff time to develop model policies	Municipal staff time to contribute to model policy development	Potential resource implications for businesses						
	3.2.7 Federal Government to support the development of an international Maritime Organization regulation for greenhouse gas emissions from commercial marine vessels.				Lead		MV staff time to liaise with Federal Government		Potential resource implications for Federal Government						
	3.2.8 Federal Government to support the International Civil Aviation Organization's certification of sustainable low carbon fuels for use in aircrafts.				Lead		MV staff time to liaise with Federal Government		Potential resource implication for Federal Government						
	3.2.9 Fortis BC and BC Hydro to continue to assess energy efficiency improvement opportunities for major energy users and implement effective incentive programs.					Lead	MV staff time to liaise with Fortis BC and BC Hydro		Potential resource implications for Fortis BC and BC Hydro						
	3.2.10 Provincial Government to earmark a portion of the carbon tax revenues for local governments to fund actions that will reduce community emissions.	Partner	Partner	Lead			MV staff time to liaise with Provincial Government and municipalities	Municipal staff time to liaise with MV and Provincial government	Potential resource implications for Provincial Government						



Strategy	Action	Roles					Potential Resources			Possible Duration of this Action					
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	3.2.11	Partner	Partner	Lead			MV staff time to liaise with Provincial Government and municipalities	Municipal staff time to liaise with MV and Provincial government	Potential resource implications for Provincial Government						
	3.2.12			Lead			MV staff time to liaise with Provincial Government		Potential resource implications for Provincial Government						
	3.2.13	Partner	Partner	Lead			MV staff time to liaise with Provincial Government and municipalities	Municipal staff time to liaise with MV and Provincial government	Potential resource implications for Provincial Government						
	3.2.14	Partner	Partner*	Lead		Partner	MV staff time to liaise with BC Ministry of Agriculture, FVRD, and other partners	Municipal staff time to liaise with BC Ministry of Agriculture (in relevant municipalities)	BC Ministry of Agriculture staff time to develop programs and materials on low carbon farming techniques						
GP - 35	3.3.1	Lead	Partner				MV staff time for review of Regional Context Statements. Liaise with municipalities, data analysis and project development	Municipal staff time to draft regional context statements, amend OCP where appropriate, and contribute to project development with MV and other partners							
	3.3.2	Lead	Partner			Partner	MV staff time to develop model bylaws.	Municipal staff time to contribute to bylaw development	Small amount of TransLink staff time to liaise with MV and municipalities						
	3.3.3	Lead	Partner			Partner	MV staff time to conduct analysis of GHG profile of the regional transportation system and contribute to regional and municipal transportation planning processes.	Municipal staff time to liaise with MV staff on GHG implications of municipal transportation plans.	TransLink staff time to liaise with MV staff on GHG implications of transportation plans.						
	3.3.4	Lead				Partner	MV staff time to liaise with TransLink on linking TravelSmart to MV programs.		Small amount of TransLink staff time to liaise with MV on Travel Smart Program						

Strategy	Action	Roles				Potential Resources			Possible Duration of this Action						
		MV	Muni	Prov	Fed	Others	Metro Vancouver	Municipal	Other	2011	2012	2013	2014	2015	2016
Strategy 3.3 Reduce the carbon footprint of the region's transportation system	3.3.5 Work with municipalities, the Provincial Government, TransLink, and the utility providers to coordinate planning and investment in low carbon vehicle infrastructure (e.g., plug-in electric vehicle charging stations, natural gas vehicle facilities).	Co-Lead	Co-lead	Partner		Partner	MV staff time to liaise with partners to coordinate investments in low carbon vehicle infrastructure	Municipal staff time to develop low carbon vehicle infrastructure programs as appropriate	Potential resource implications for Provincial Government						
	3.3.6 Work with municipalities, TransLink, and the Provincial Government to improve data collection and sharing to inform transportation-related emission reduction strategies.	Lead	Partner	Partner		Partner	MV staff time to liaise with TransLink and municipalities on data collection and sharing	Municipal staff time to liaise with TransLink and MV on data collection and sharing	TransLink staff time to liaise with MV and municipalities						
	3.3.8 Provincial and Federal Governments to enact enabling legislation that generates additional revenues for transit infrastructure.			Co-lead	Co-lead		MV staff time to liaise with the Provincial and Federal Government		Potential resource implications for Federal and Provincial Government						
	3.3.9 Federal and Provincial Governments to enhance financial incentives to promote cleaner, fuel-efficient heavy and light duty vehicle purchases and the adoption of new low-carbon and efficient vehicle technologies.			Co-lead	Co-lead		MV staff time to liaise with the Provincial and Federal Government		Potential resource implications for Federal and Provincial Government						
	3.3.10 Provincial Government to expand support of Sustainable Fleet Management Programs (such as E3 and GreenFleets BC, IdleFree BC) as a central source for reducing emissions from private and public vehicle fleets.			Lead			MV staff time to liaise with the Provincial Government		Potential resource implications for Provincial Government						
	3.3.11 Provincial Government to extend the Greenhouse Gas (Vehicle Emissions Standard) Act to 2017 through 2025 and incrementally increase the stringency of these standards.			Lead			MV staff time to liaise with the Provincial Government		Potential resource implications for Provincial Government						
	3.3.12 The Provincial Government to investigate combining air contaminants and greenhouse gases into a coordinated vehicle emission standard and increase its stringency.			Lead			MV staff time to liaise with the Provincial Government		Potential resource implications for Provincial Government						
	3.3.13 The Provincial Government to review the B.C. low-carbon fuel standard to ensure provisions are meeting desired greenhouse reduction goals and are not creating unintended economic and environmental consequences.			Lead			MV staff time to liaise with the Provincial Government		Potential resource implications for Provincial Government						
	3.3.14 The Insurance Corporation of British Columbia, in consultation with TransLink and other stakeholders, to investigate an equitable distance-based insurance option that helps encourage drivers to drive fewer kilometres.					Lead	MV staff time to liaise with ICBC, municipalities and other partners	Municipal staff time to liaise with MV and ICBC.	Potential resource implications for ICBC						
	3.3.15 The Provincial Government, TransLink, and municipalities to enhance transportation demand management measures, including user road pricing, fuel efficient vehicle incentives and outreach programs.		Partner	Co-lead			Co-lead	MV staff time to liaise with the Provincial Government, TransLink, and municipalities on TDM measures	Municipal staff time to liaise with the Provincial Government, TransLink, and MV on TDM measures	TransLink staff time to liaise with MV, Provincial Government and municipalities					



Strategy	Action	Roles				Potential Resources			Possible Duration of this Action						
		MV	Muni	Prov	Fed	Others	Metro Vancouver	Municipal	Other	2011	2012	2013	2014	2015	2016
Strategy 3.4 Explore opportunities for carbon sequestration	3.3.16: TransLink and municipalities work with the private sector to improve the efficiency of goods movement through better logistics coordination between ports, carriers, shippers, and their customers.	Partner	Partner*		?	Lead	MV staff time to liaise with TransLink, PMV, private sector and municipalities	Municipal staff time to work with TransLink, PMV and private sector on goods movement transportation	Potential resource implications for TransLink, Port Metro Vancouver and private sector	...					
	3.4.1 Explore carbon sequestration opportunities on Metro Vancouver's corporate lands, such as: a) reforestation, b) ecosystem restoration, and c) biochar.	Lead					MV staff time to analyse carbon sequestration opportunities								
	3.4.2 Develop a regionally specific carbon storage and sequestration guide to aid in site specific land use and landscape decision making in Metro Vancouver.	Lead					MV staff time to develop a sequestration guide utilizing consulting resources as appropriate	Small amount of staff time to develop carbon sequestration guide							
	3.5.1 Produce a consolidated climate change action guide which outlines public actions which will significantly reduce greenhouse gas emissions.	Lead	Partner			Partner	MV staff time to develop a regional climate action guide	Small amount of municipal staff time to coordinate messaging	Small amount of staff time from other partners						
	3.5.2 Raise public awareness and uptake of low carbon building and transportation options through Metro Vancouver's outreach programs.	Lead				Partner	MV staff time to develop and deliver public awareness programs		Small amount of staff time from other partners						
Strategy 3.5 Increase public understanding of climate change issues and encourage personal action	3.5.3 Pursue the development of an Air Quality and Climate Change Academy, in partnership with academic institutions and other partners, which will enhance air quality and climate change research, formal education, and public outreach within the region.	Lead				Partner	MV will host visioning sessions and utilize consulting budget as appropriate	Small amount of municipal staff time for visioning	May have resource implications for academic institutions and other partners						
Goal 1&2 Lead		22	2	2	6	6	2								
Goal 1&2 Co-lead		3	0	2	3	2									
Goal 1&2 Partner		7	11	18	9	25									
Goal 3 Lead		18	0	10	2	2									
Goal 3 Co-lead		1	2	3	2	2									
Goal 3 Partner		5	17	6	3	14									
Total		56	32	45	25	47									

\* Indicates that action and resource implications only apply to those municipalities where action is relevant

### Metro Vancouver's Implementation Matrix – Summary of Actions Proposing Municipal Involvement

Strategy	Specific Actions Requested Involving Municipalities	
	Community Role	Regional Role – Metro Vancouver
<b>Goal 1: Protect public health and the environment from air pollution (36 Actions).</b>		
1.1. Reduce emissions of and public exposure to diesel particulate matter.	Support MV <sup>4</sup> to develop air quality-focused land use planning and urban design guidelines to minimize resident exposure to diesel emissions and other traffic-related air pollution (1.1.4).	Municipalities to consider using air-quality land use planning and urban design guidelines (1.1.12).
1.2. Reduce air contaminant emissions from industrial, commercial, institutional and agricultural sources.	Support MV to continue to develop and implement local air quality action plans (1.2.2). Support MV to develop and implement an odor management program including an odor management regulation and effective complaint management and communications processes (1.2.4). Support MV to explore regulatory options to reduce residential wood smoke emissions (1.3.2). Support MV to explore incentives to encourage removal of residential fuel oil devices where options are available (1.3.3). Support MV to investigate options and introduce mechanisms to reduce emissions from open burning (1.3.4).	- - - -
1.3. Reduce air contaminant emissions from residential sources.	Support adoption of MV's model anti-idling bylaw and education campaigns (1.4.2). Support TransLink and MV to develop: 1) regional air quality targets and supporting implementation strategies for inclusion in regional long-range transportation plans, and b) air quality guidelines to optimize facility locations and fleet technology (1.4.3). Support MV to develop an adverse air quality episode mitigation program (1.5.1). Support MV to create locally-relevant air quality and climate change materials for use by teachers and others (1.5.3). Support MV in developing an Air Quality and Climate Change Academy (1.5.5).	Municipalities to develop idling reduction programs, including consideration of adopting MV's model anti-idling bylaw (1.4.4). - - -
1.4. Reduce air contaminant emissions from, cars, trucks, and buses.		
1.5. Increase public understanding of air quality issues and public engagement in clean air programs.		
<b>Goal 2: Improve visual air quality (9 Actions).</b>		
2.1. Reduce air contaminants that can degrade visual air quality.	-	-

<sup>2</sup> Action to be led by Metro Vancouver or other agency with member municipalities providing a supporting role.

<sup>3</sup> Action requested to be led by member municipalities and to be supported by Metro Vancouver.

<sup>4</sup> MV – Metro Vancouver

2.2 Develop visual air quality management program for the Lower Fraser Valley airshed.	-	-
<b>Goal 3: Minimize the region's contribution to global climate change (39 Actions).</b>		
3.1 Reduce emissions of short-lived climate forcers	Support MV and provincial government to continue developing and implementing projects to reduce methane emission from agricultural activities (3.1.4).	Co-lead with MV to develop and implement strategies/actions to reduce methane emissions from landfills through organics diversion and methane capture (3.1.3).
3.2 Support the region's municipalities, businesses and residents to reduce their carbon footprints.	Support MV to explore establishment of a Regional Climate Action Fund to support action to reduce regional greenhouse gas (GHG) emissions and energy consumption (3.2.1).	Co-lead with MC to assess region's low carbon energy sources, waste heat recovery and district energy opportunities and risks and work to coordinate public and private investment in supporting infrastructure (3.2.3).
	Support MV to establish a regional carbon credit ownership protocol (3.2.2).	
	Support MV in providing greenhouse gas management training for small and medium-sized businesses (3.2.4).	
	Support MV to develop a model procurement policy which includes GHG emission requirements (3.2.5).	
	Support MV in working with provincial government to earmark a portion of the carbon tax revenues for local governments to fund actions to reduce community GHG emissions (3.2.10).	
	Support MV in working with the provincial government to continue to increase carbon tax provided that: a) impacts to low income households are mitigated, and b) a portion of the funding is dedicated to a Metro Vancouver Climate Action fund for GHG emission reduction projects in the region (3.2.11).	
	Support MV in working with the provincial government to set high energy and GHG emission performance standards for buildings, develop standards for on-site renewable energy systems in the BC Building Code and promote best practices in building energy performance (3.2.13).	
	Support MV in working with provincial government to continue to investigate renewable energy technologies and low carbon farming techniques (3.2.14).	
	Support MV to implement elements of the Regional Growth Strategy that supports land use patterns to reduce vehicle trips and increase walking, cycling, and use of public transit and support the efficient movement of goods (3.3.1).	
	Support MV to develop a model bylaw to facilitate low carbon transportation choices such as pedestrian-orientated design, road space allocation, cycling infrastructure, car sharing, low carbon vehicle infrastructure, etc. (3.3.2).	
3.3 Reduce the carbon footprint of the region's transportation system.	Support MV providing detailed GHG emission analysis of the regional transportation system in support of regional municipal transportation planning and develop strategic actions to reduce transportation-related GHG emissions (3.3.3).	Co-lead with MV to work with other partners to coordinate planning and investment in low carbon vehicle infrastructure (e.g., plug-in electric vehicle charging stations, natural gas vehicle facilities) (3.3.5).
	Support MV to improve data collection and sharing to inform transportation-related GHG emission reduction strategies (3.3.6).	
	Support MV, the provincial government and TransLink to enhance transportation demand management measures, including user road pricing, fuel efficient vehicle incentives and outreach programs (3.3.15).	

	Support MV and TransLink to work with the private sector to improve the efficiency of goods movement through better logistics coordination between ports, carriers, shippers and customers (3.3.16).	
3.4 Explore opportunities for carbon sequestration	-	-
3.5 Increase public understanding of climate change issues and encourage personal action	Support MV in producing a consolidated climate change action guide which outlines public actions which will significantly reduce GHG emissions (3.5.1).	-