



Smart Growth America  
Making Neighborhoods Great Together

# Transportation Demand Management

Performance Measures

December 2013

## **Transportation Reform Demonstration Project:**

Creating jobs and economic development in Michigan by removing barriers to coordinated federal, state and local public transportation investment and management.

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# INTRODUCTION

The Michigan Sense of Place Council, representing numerous state agencies under the direction of Governor Snyder, has partnered with Smart Growth America to provide technical advisory services to six communities of Michigan pursuing livable communities initiatives. Assistance was offered in two primary areas – community mobility management and strategic transportation demand management (TDM). The effort in the SEMCOG region focuses particularly upon TDM as a mitigation strategy during major capital construction.

TDM is a suite of strategies that reduces congestion by spreading out peak travel to different times of day and different modes other than driving alone. TDM programs can be administered at many levels – from a regional agency, municipality or individual employers – and works by providing a variety of competitive travel choices and incentives to change behavior.

The SEMCOG project has progressed in four stages:

- 1) assessment of existing TDM programs, local resources, and major project status and phasing,
- 2) discussion of alternative approaches and strategies,
- 3) development of strategic implementation plan,
- 4) proposed performance measurement and tracking framework.

This memo outlines that fourth and final component. It identifies a number of recommended measures meaningful to the transportation demand management strategy as well as a recommended process for data collection.

# PERFORMANCE MEASUREMENT PROCESS

For TDM strategies to have long term value, information on the impact and performance of the package of strategies is necessary. This not only provides valuable information in making adjustments to management strategies, but also provides the business case for continued application in future projects and regionally.

## Performance Measurement Framework

Identifying the right performance measures is often the most difficult stage of the performance measurement process. Numerous performance measures would be important to document the success of TDM programs, however only a handful of measures can be realistically and effectively collected on an ongoing basis. The performance measurement framework outlined in Figure 1 below provides an overview of criteria used to develop the performance measures:

**Figure 1 Performance Measurement Framework**

<b>Performance Measurement Criteria</b>	<b>Description</b>
Consistent	Comparable data should be collected year after year. This means data needs to be collected and reported the same way each time on the same geography.
Readily available	Data should be drawn from existing data sets wherever possible.
Useful	Data collected should meaningfully inform how the suggested TDM strategies are performing and what adjustments are prudent to make.
Timely	Data should be collected on a regular basis – for example, quarterly during construction and annually thereafter – and reported within 6 weeks of data collection.
Reported	Data and findings must be recorded and transmitted to project owners and partners to inform additional actions.

## Performance Measurement Matrix

TDM strategies focused on in the implementation plan are designed to mitigate the impacts of specific construction projects. Although it will be important to track the impact of these strategies during the construction projects, there is also an opportunity to measure the lasting effects of the proposed TDM strategies. Therefore, two types of performance measures are included in the matrix below:

- **Construction Measures** track the impact of the strategy during a specific construction project
- **Ongoing Measures** track the impact of the strategy over time at a regional level

Figure 2 below provides a matrix of identified construction and ongoing performance measures, the data source and data source contact, frequency of data collection, the baseline condition, and a target to assess the performance of each measure against the baseline. Where relevant, examples of other communities utilizing these or similar metrics are provided as reference. The measures outlined in Figure 2 require data that is readily available today. Figure 3 provides a matrix of performance measures that can be tracked if strategies outlined in Phase III are implemented.

Figure 2 Performance Measure Matrix – Existing Data Sources

TDM Strategy	Construction Measure	Ongoing Measure	Data Source Data Collection Responsibility	Frequency (Construction)	Frequency (Ongoing)	Baseline	Targets		Notes (including reference communities)
							1. During construction	2. 3 years post-construct	
Establish transit pass program and distribute free/reduced cost passes	# of free/ reduced cost pass users on routes during construction	Ridership on routes after construction	Transit service providers (SMART, DDOT, PeopleMover)	Monthly	Annually	The average number of transit riders on routes serving or paralleling the corridor	Construction: 10% increase in combined ridership of all routes.	Ongoing: 5% increase in combined ridership.	n/a
Biking	# of bike counts on parallel routes during construction	n/a <sup>1</sup>	MDOT construction project management <sup>2</sup>	Monthly	n/a	No baseline presently available. Bicycle counts should be conducted prior to establishment of construction zone.	TBD – must be determined based on baseline volumes.		n/a
Business Support	Change (+) in # of employees participating in Commuter Challenge	Change in # of employees participating in Commuter Challenge	SEMCOG	Annually	Annually	700 people participated in Commuter Challenge in 2012	10% increase per year		Participants in the Bike Commute Challenge in Portland, Oregon, increased by 9% over a three year period. <sup>1</sup>
HOV Lanes	# of cars in HOV lanes during construction	n/a	MDOT (sensors)	Monthly	n/a	n/a	To be determined if HOV lanes are implemented during and/or post-construction		n/a
Increase usage and availability of Park & ride spaces within	Change (+) in utilization of park & ride spaces within	Change in utilization of park & ride	MDOT: Statewide Carpool Parking Lot website: <a href="http://mdotcf.state.mi.us/p">http://mdotcf.state.mi.us/p</a>	Monthly	Annually	<b>Utilization:</b> MDOT: 46% <sup>iii</sup>	Construction: 4% - 5% increase in utilization		Estimated based on King County park-and-ride utilization reports which show a 2% increase in

<sup>1</sup> It is assumed that MDOT, as construction manager, will complete bicycle counts and monitoring during construction. Any counts conducted following construction would likely be the responsibility of local jurisdictions.

<sup>2</sup> While bicycle count information is not currently collected and recorded by MDOT this data can be quickly and relatively affordably collected via automated count technologies. Several non-motorized count technologies are available. Several can either be mobile devices (moved between construction locations) or permanent installations (for ongoing counts). For a summary of automated bicycle and pedestrian count technologies and equipment providers please see the National Bicycle and Pedestrian Documentation Project Automatic Count Technology Memo (June 2009) available at [bikepeddocumentation.org/index.php/download\\_file/-/view/22](http://bikepeddocumentation.org/index.php/download_file/-/view/22)



TDM Strategy	Construction Measure	Ongoing Measure	Data Source Data Collection Responsibility	Frequency (Construction)	Frequency (Ongoing)	Baseline	Targets		Notes  (including reference communities)
							1. During construction	2. 3 years post-construct	
Ride; Park & Pool	affected construction area <sup>ii</sup>	spaces	ublic/carpoolpark/maps/metro.pdf  SMART: SMART staff			SMART: 53% <sup>iv</sup>	Ongoing: 3% - 4% annual increase in utilization	utilization per year over the last 4 years. <sup>v</sup> Assumed a slightly improved growth in utilization for areas within the affected construction area.	
Vanpool	Change (+) in # of vanpool riders within the affected construction area <sup>vi</sup>	Change in # of vanpool riders within the same geography	vRide tracks origin/destination of vanpool users and new fleets per month. Vanpools report to NTD and data can be gleaned from NTD web site.  vRide can track vanpool usage in a specific geographic area during construction.	Monthly	Annually	Existing vanpool ridership along the construction corridor (baseline depends on construction project and will need to be determined on an as-needed basis)	Construction: 12% increase in # of vanpool riders  Ongoing: 10% annual increase in # of vanpool riders	Assumed slightly higher ridership in construction zones due to targeted marketing.  Target based on vRide existing change in ridership over the last four years.	
Congestion Management	Travel time index along construction project corridor	Travel time index along construction project corridor	SEMCOG Travel Time Index	Monthly	Annually	I-94: TTI 2.191, Congestion High  I-75: TTI 2.045, Congestion High	Construction: Moderate congestion (Freeway: 1.3 – 1.8; Arterials: 1.5 – 2.0)	SEMCOG tracks travel time index (TTI) on an annual basis. <a href="http://www.semco.org/uploadedFiles/Programs_and_Projects/Transportation/Congestion/CngDefThrshold.pdf">http://www.semco.org/uploadedFiles/Programs_and_Projects/Transportation/Congestion/CngDefThrshold.pdf</a>	
				Monthly	Annually	I-96: TTI 1.535 , Congestion Moderate  Woodward: TTI 1.840, Congestion Moderate	Ongoing: No/low congestion (Freeway: Less than 1.3; Arterials: < 1.5)		
Commuting alternatives (non-SOV travel)	Employee mode choice	Employee mode choice	Employee travel survey (administered by major employers)	Before construction 6-8 months into construction	Annually		<u>Region and employers to set</u> <sup>3</sup>		

<sup>3</sup> Recommend that the region set mode split targets for employees in the region as a whole and distinct targets for sub areas of divers contexts (e.g. urban, suburban, and suburban edge).

Figure 3 Performance Measure Matrix – Future Performance Measures Based on Recommended Strategies

TDM Strategy	Construction Measure	Ongoing Measure	Data Source Contact	Data Source	Frequency (Construction)	Frequency (Ongoing)	Baseline	Target	Notes/Assumptions
Localized travel app	Number of travel app hits within the affected construction area <sup>vii</sup>	Number of travel app hits	Travel app contractor (TBD)	Website log	Monthly	Monthly	N/A	Construction: 0.4 - 0.65 hits per capita within the affected construction area <sup>viii</sup>	TriMet multimodal trip planner gets 950,000 hits per month on average, or 0.63 hits per capita in the TriMet service area. <sup>ix</sup>
	Type of travel app searches (i.e. non-auto searches)	Type of travel app search (i.e. non-auto searches)	Travel app contractor (TBD)		Monthly	Annually		16%-25% of searches are non-auto	
Marketing campaign	Registrants on marketing website (assuming people can sign up for web updates) within the affected construction area	% of people aware of regional marketing campaign	Lead marketing campaign agency (TBD)	Construction: Website log Ongoing: Biennial travel survey (not currently administered)	Monthly	Biannually	N/A	Construction: 10% of population within the affected construction area registered on marketing website	Ongoing target: Estimated based off of the Metro Portland Regional Travel Options Travel & Awareness Survey results. <sup>xi</sup>
								Ongoing: 21%-35% population aware of regional campaign	

## USER GUIDE

This section presents a practical “User Guide” to collect base information and follow up data to assess the impact of the TDM programs and strategies in the region. This Guide provides a brief description of the performance measure (both during construction and on an ongoing basis), the baseline condition in order to assess progress, the data associated with each measure, the required resources to collect that data, and the appropriate time frame to collect the data.

<b>TDM Strategies: Establish transit pass program and distribute free/reduced passes</b>	
<b>TDM Measure(s): # of pass users; # of riders</b>	
<b>Baseline Condition:</b> Average # of riders on construction routes (TBD)	<b>Target:</b> During construction – 10% increase in ridership (combined) across all routes Ongoing – 5% sustained increase in ridership
<b>Construction Measure:</b> # of free/reduced pass users on routes during construction	<b>Ongoing Measure:</b> Ridership on routes after construction
<b>Data Source:</b> SMART Service Development Department, DDOT, PeopleMover	<b>Data Source:</b> SMART Service Development Department, DDOT, PeopleMover
<b>Data Source Contact:</b> <b>SMART:</b> Jay Gardiner, Gardiner@smartbus.org, (313) 223-2352 (monthly ridership reports – Service Evaluation Statistics Report) <b>DDOT:</b> Wilfred Beal, WilBea@detroitmi.gov, (313) 833-0159 <b>PeopleMover:</b> Henry Cornelius, chenry@thepeoplemover.com, (313) 224-2160	<b>Data Source Contact:</b> <b>SMART:</b> Jay Gardiner, Gardiner@smartbus.org, (313) 223-2352 (monthly ridership reports – Service Evaluation Statistics Report) <b>DDOT:</b> Wilfred Beal, WilBea@detroitmi.gov, (313) 833-0159 <b>People Mover:</b> Henry Cornelius, chenry@thepeoplemover.com, (313) 224-2160
<b>Frequency:</b> Monthly	<b>Frequency:</b> Annually
<b>Construction Score</b>	<b>Ongoing Score</b>
<b>Date Scored</b>	<b>Date Scored</b>

**TDM Strategies: Establish transit pass program and distribute free/reduced passes**

**TDM Measure(s): # of pass users; # of riders**

**How to Collect:**

Ridership and pass information for routes along the construction corridors will need to be collected from SMART, MDOT, and People Mover. Contacts are provided above. Data should be collected monthly during the construction period and annually thereafter.

**TDM Strategies: Biking**

**TDM Measure(s): # of bike counts on parallel routes during construction**

Baseline Condition: N/A	Target: TBD
Construction Measure: # of bike counts on parallel routes during construction	Ongoing Measure: N/A
Data Source: MDOT staff	Data Source: N/A
Data Source Contact: Tony Kratofil, MDOT, kratofilt@michigan.gov	Data Source Contact: N/A
Frequency: Monthly	Frequency: Annually
Construction Score	Ongoing Score
Date Scored	Date Scored

**How to Collect:**

Bike counts along parallel routes during construction should be required to be tracked. Contact Tony Kratofil, Metro Region Engineer at MDOT, to identify the specific project manager for the construction project. The project manager will administer the bike counts on designated routes on a monthly basis.

Bicycle data can be quickly and relatively affordably collected via automated count technologies. Several non-motorized count technologies are available. Many can either be mobile devices (moved between construction locations) or permanent installations (for ongoing counts).

For a summary of automated bicycle and pedestrian count technologies and equipment providers please see the National Bicycle and Pedestrian Documentation Project Automatic Count Technology Memo (June 2009) available at [bikepeddocumentation.org/index.php/download\\_file/-/view/22](http://bikepeddocumentation.org/index.php/download_file/-/view/22)

<b>TDM Strategies: Business Support</b>	
<b>TDM Measure(s): Change in # of employers participating in Commuter Challenge</b>	
<b>Baseline Condition:</b> 2 businesses (Compuware and Quicken)	<b>Target:</b> 10% increase per year
<b>Construction Measure:</b> Change in # of employers participating in Commuter Challenge	<b>Ongoing Measure:</b> Change in # of employers participating in Commuter Challenge
<b>Data Source:</b> SEMCOG	<b>Data Source:</b> SEMCOG
<b>Data Source Contact:</b> Iris Steinberg, SEMCOG, <a href="mailto:steinberg@semcog.org">steinberg@semcog.org</a>	<b>Data Source Contact:</b> Iris Steinberg, SEMCOG, <a href="mailto:steinberg@semcog.org">steinberg@semcog.org</a>
<b>Frequency:</b> Annually	<b>Frequency:</b> Annually
Construction Score	Ongoing Score
Date Scored	Date Scored
<b>How to Collect:</b> The number of employees participating in the SEMCOG Commuter Challenge should be tracked both during construction and on an ongoing basis. Irish Steinberg from SEMCOG, or a future TDM Coordinator, can track this number annually.	

<b>TDM Strategies: HOV Lanes</b>	
<b>TDM Measure(s): # of cars in HOV lanes during construction</b>	
Baseline Condition: N/A	Target: TBD
Construction Measure: # of cars in HOV lanes during construction	Ongoing Measure: N/A
Data Source: MDOT	Data Source: N/A
Data Source Contact: Tony Kratofil, MDOT, kratofilt@michigan.gov	Data Source Contact: N/A
Frequency: Monthly	Frequency: N/A
Construction Score	Ongoing Score
Date Scored	Date Scored
<p><b>How to Collect:</b></p> <p>Although MDOT does not currently have high occupancy vehicle (HOV) lanes, MDOT could install them as part of construction projects. MDOT would need to install sensors in the HOV lanes to track the number of cars traveling in the HOV lane. Data from the sensors would be available on a daily basis. Contact Tony Kratofil, Metro Region Engineer at MDOT, to identify the specific project manager for the construction project. The project manager will administer the HOV sensors on designated routes and track HOV use on a monthly basis during construction.</p>	

<b>TDM Strategies: Increase usage and availability of Park-and-Ride; Park-and-Pools</b>	
<b>TDM Measure(s): change in utilization of park &amp; rides within affected construction area</b>	
<b>Baseline Condition:</b> MDOT utilization: 46%; SMART utilization: 53%	<b>Target:</b> 4-5% increase during construction; 3-4% sustained increase post construction
<b>Construction Measure:</b> Change in utilization of park-and-rides within affected construction area	<b>Ongoing Measure:</b> Change in utilization of park-and-rides within affected construction area
<b>Data Source:</b> MDOT and SMART	<b>Data Source:</b> MDOT and SMART
<b>Data Source Contact:</b> MDOT: Statewide Carpool Parking Lot website: <a href="http://mdotcf.state.mi.us/public/carpoolpark/maps/metro.pdf">http://mdotcf.state.mi.us/public/carpoolpark/maps/metro.pdf</a> ; Park & Pool program manager, Sue Data, DattaS@michigan.gov  SMART: Jay Gardiner, Gardiner@smartbus.org, (313) 223-2352	<b>Data Source Contact:</b> MDOT: Statewide Carpool Parking Lot website: <a href="http://mdotcf.state.mi.us/public/carpoolpark/maps/metro.pdf">http://mdotcf.state.mi.us/public/carpoolpark/maps/metro.pdf</a> ; Park & Pool program manager, Sue Data, DattaS@michigan.gov  SMART: Jay Gardiner, Gardiner@smartbus.org, (313) 223-2352
<b>Frequency:</b> Monthly	<b>Frequency:</b> Annually
<b>Construction Score</b>	<b>Ongoing Score</b>
<b>Date Scored</b>	<b>Date Scored</b>
<b>How to Collect:</b> SMART has the ability to track park-and-ride utilization on a quarterly and annual basis. MDOT also tracks the capacity and utilization of its park & ride lots and displays this information online, as noted above.	

<b>TDM Strategies: Vanpool Usage</b>	
<b>TDM Measure(s): change in # of vanpool/carpool riders within the affected construction area</b>	
<b>Baseline Condition:</b> Annual ridership: 3,754	<b>Target:</b> 12% increase during construction; sustained annual increase of 10% per year
<b>Construction Measure:</b> Change in # of vanpool riders within the affected construction area <sup>xii</sup>	<b>Ongoing Measure:</b> Change in # of vanpool carpool riders within the affected construction area
<b>Data Source:</b> vRide	<b>Data Source:</b> vRide
<b>Data Source Contact:</b> Jennifer Miller, vRide, jennifer.miller@compuware.com	<b>Data Source Contact:</b> Jennifer Miller, vRide, jennifer.miller@compuware.com
<b>Frequency:</b> Monthly	<b>Frequency:</b> Annually
<b>Construction Score</b>	<b>Ongoing Score</b>
<b>Date Scored</b>	<b>Date Scored</b>
<p><b>How to Collect:</b>  Vanpool ridership numbers are available upon request. New riders are tracked as they submit paperwork to ride. Each van submits a daily ridership form that is reported to the National Transit Database which is submitted monthly online. A monthly report can be easily produced upon request. This monthly report will also need to be acquired at the beginning of the construction project to document the baseline condition along the corridor.</p>	



<b>TDM Strategies: Congestion Management</b>	
<b>TDM Measure(s): Travel time</b>	
<b>Baseline Condition:</b> I-94: TTI 2.191, congestion high; I-75: TTI 2.045, Congestion High; I-96: TTI 1.535, Congestion Moderate; Woodward: TTI 1.840, Congestion Moderate	<b>Target:</b> On all corridors: during construction = moderate congestion (Freeway: 1.3 – 1.8; Arterials: 1.5 – 2.0) Post-construction: No/low congestion (Freeway: Less than 1.3; Arterials: < 1.5)
<b>Construction Measure:</b> Travel time	<b>Ongoing Measure:</b> Travel time
<b>Data Source:</b> SEMCOG Travel Time Index	<b>Data Source:</b> SEMCOG Travel Time Index
<b>Data Source Contact:</b> Tom Bruff, SEMCOG, <a href="mailto:bruff@semcog.org">bruff@semcog.org</a> , 313-324-3340	<b>Data Source Contact:</b> Tom Bruff, SEMCOG, <a href="mailto:bruff@semcog.org">bruff@semcog.org</a> , 313-324-3340
<b>Frequency:</b> Monthly	<b>Frequency:</b> Annually
<b>Construction Score</b>	<b>Ongoing Score</b>
<b>Date Scored</b>	<b>Date Scored</b>
<b>How to Collect:</b> SEMCOG tracks travel time on an annual basis. SEMCOG’s travel time index is defined on this website: <a href="http://www.semcog.org/uploadedFiles/Programs_and_Projects/Transportation/Congestion/CngDefThrshold.pdf">http://www.semcog.org/uploadedFiles/Programs_and_Projects/Transportation/Congestion/CngDefThrshold.pdf</a> Baseline conditions for freeways are documented here: <a href="http://www.semcog.org/uploadedFiles/Programs_and_Projects/Transportation/Congestion/PerformanceFwy.pdf">http://www.semcog.org/uploadedFiles/Programs_and_Projects/Transportation/Congestion/PerformanceFwy.pdf</a> Baseline conditions for arterials are documented here: <a href="http://www.semcog.org/uploadedFiles/Programs_and_Projects/Transportation/Congestion/PerformanceArterial.pdf">http://www.semcog.org/uploadedFiles/Programs_and_Projects/Transportation/Congestion/PerformanceArterial.pdf</a> The Travel Time Index is typically tracked on an annual basis. During construction, the annual count would be used as a baseline and the construction project manager would monitor travel time on a monthly basis.	

<b>TDM Strategy: Localized Travel App</b>	
<b>TDM Measure(s): # of travel app hits; type of travel app hits</b>	
<b>Baseline Condition:</b> Not available (no travel app exists)	<b>Target:</b> 0.4 - 0.65 hits per capita within the affected construction area 16-25% of all searches are for non-SOV alternatives
<b>Construction Measure:</b> (1) # of travel app hits within the affected construction area; <sup>xiii</sup> (2) type of search (i.e. non-auto searches) within the affected construction area	<b>Ongoing Measure:</b> (1) # of travel app hits within the affected construction area; <sup>xiv</sup> (2) type of search (i.e. non-auto searches) within the affected construction area
<b>Data Source:</b> Website log	<b>Data Source:</b> Website log
<b>Data Source Contact:</b> Travel app contractor (TBD)	<b>Data Source Contact:</b> Travel app contractor (TBD)
<b>Frequency:</b> Quarterly	<b>Frequency:</b> Annually
<b>Construction Scoring</b>	<b>Ongoing Scoring</b>
<b>Date Scored</b>	<b>Date Scored</b>
<b>How to Collect:</b> Once a travel app is developed, the number of travel app hits within a construction zone should be tracked by contacting the travel app contractor (TBD). When developing the travel app, it will be important for SEMCOG to ensure that the web development contractor has the ability to track the number, location, and type of website hits.	

<b>TDM Strategies: Marketing campaign</b>	
<b>TDM Measure(s): # of registrants on marketing website within the affected construction area; % of people aware of regional campaign</b>	
<b>Baseline Condition:</b> N/A – regional marketing campaign does not yet exist	<b>Target:</b> During Construction - 10% of population within the affected construction area registered on marketing website Post-construction/ongoing – 21-35% of population are aware of travel alternatives
<b>Construction Measure:</b> # of registrants on marketing website within the affected construction area	<b>Ongoing Measure:</b> % of people aware of regional marketing campaign
<b>Data Source:</b> Website log (TBD)	<b>Data Source:</b> Biennial travel and awareness survey (not currently administered)
<b>Data Source Contact:</b> Lead marketing campaign agency (TBD)	<b>Data Source Contact:</b> Lead marketing campaign agency (TBD)
<b>Frequency:</b> As needed	<b>Frequency:</b> Biannually
<b>Construction Score</b>	<b>Ongoing Score</b>
<b>Date Scored</b>	<b>Date Scored</b>
<b>How to Collect:</b> For the construction measure, the number of people who sign up to receive updates on the marketing website will be a good measure of people’s awareness of the construction project. On an ongoing basis once the regional marketing campaign is established, a biannual travel and awareness survey should be administered to gauge people’s awareness of the regional campaign. Metro Portland conducts a similar survey. A copy of the survey can be found in Appendix A of this summary report: <a href="http://library.oregonmetro.gov/files/2012_rto_travel_and_awareness_report_v1.pdf">http://library.oregonmetro.gov/files/2012_rto_travel_and_awareness_report_v1.pdf</a> .	

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<sup>i</sup> Bicycle Transportation Alliance. 2009 – 2012 Annual Reports.

<sup>ii</sup> The “affected construction area” is determined as half the distance between the construction route and the prescribed detour route.

<sup>iii</sup> <http://mdotcf.state.mi.us/public/carpoolpark/maps/metro.pdf>

<sup>iv</sup> Email from Jay Gardiner, SMART, October 18, 2013.

<sup>v</sup> King County. Transit Park-and-Ride Utilization Reports (Fourth Quarter Reports for 2009, 2010, 2011, 2012).

<sup>vi</sup> The “affected construction area” is determined as half the distance between the construction route and the prescribed detour route.

<sup>vii</sup> The “affected construction area” is determined as half the distance between the construction route and the prescribed detour route.

<sup>viii</sup> To confirm the target, SEMCOG should determine the number of website hits that MiDrive and MiCommute currently receive. Diane Cross at MDOT ([CrossD2@michigan.gov](mailto:CrossD2@michigan.gov)) and Robert Morosi at MDOT ([MorosiR@michigan.gov](mailto:MorosiR@michigan.gov)) are the contacts for this information.

<sup>ix</sup> TriMet. The Open Trip Planner. Metro 2009-2011 Regional Travel Options Grant. August 31, 2011.

<sup>x</sup> Working Paper #1.

<sup>xi</sup> [http://library.oregonmetro.gov/files/2012\\_rto\\_travel\\_and\\_awareness\\_report\\_v1.pdf](http://library.oregonmetro.gov/files/2012_rto_travel_and_awareness_report_v1.pdf)

<sup>xii</sup> The “affected construction area” is determined as half the distance between the construction route and the prescribed detour route.

<sup>xiii</sup> The “affected construction area” is determined as half the distance between the construction route and the prescribed detour route.

<sup>xiv</sup> The “affected construction area” is determined as half the distance between the construction route and the prescribed detour route.