Chicago Metropolitan Agency for Planning

233 South Wacker Drive
Suite 800
Chicago, Illinois 60606

312 454 0400
www.cmap.illinois.gov

Tentative Tier II Consultation Meeting
Agenda
September 3, 2015
Lake County Room
CMAP Offices
Teleconference # 800-747-5150, Access Code 3868836

1.0 Call to Order and Introductions 10:30 a.m.

2.0 Agenda Changes and Announcements

3.0 Approval of Minutes – February 19, 2015
ACTION REQUESTED: Approval

4.0 Semi-Annual GO TO 2040 and TIP Conformity Amendment
The semi-annual GO TO 2040 and TIP conformity amendment is scheduled to be considered at the October joint meeting of the CMAP Board and MPO Policy Committee. The amendment was released for public comment at the Transportation Committee meeting on July 17, 2015. No comments were received on the conformity amendment.
Conformity Amendment Memo
ACTION REQUESTED: Information

5.0 Update to monthly and daily VMT inputs to MOVES model
The MOVES model requires various inputs, including a "monthly" distribution of VMT by source type (vehicle type) and month, and a "daily" distribution of VMT by source type (vehicle type), month, road type and weekday vs. weekend. The current inputs are based on IDOT count data from 2011; CMAP staff has used IDOT continuous count data, supplemented with other sources, to update these inputs. Memoranda documenting the analysis method and a comparison of emissions inventories using the current inputs and the proposed inputs are included with the materials.
ACTION REQUESTED: Concurrence in the use of the updated input data

6.0 I-290 (TIP ID 04-00-0023)
IDOT has requested a discussion of this project, and whether it might or might not be a project of air quality concern. The consultant will present updated project build alternative model results.
ACTION REQUESTED: Discussion

7.0 Ozone NAAQS Update

US EPA published a proposed rule updating the ozone NAAQS on December 17, 2014. The rule is anticipated to be finalized in October. A status report on the proposed rule will be presented.

ACTION REQUESTED: Information

8.0 Ozone attainment status

The northeastern Illinois region was designated as marginal nonattainment of the 2008 ozone NAAQS; the attainment deadline was July 20, 2015. Based on 2012-2014 monitor data, the region did not attain the NAAQS. Possible responses to this situation will be discussed.

ACTION REQUESTED: Discussion

9.0 Updated Transportation Conformity SIP

In 1998, the Illinois EPA finalized the attached Memorandum of Agreement on the process to conduct Transportation Conformity in the Chicago nonattainment area. This agreement was in the process of being approved for inclusion in the SIP. However, due to a March 1999 court ruling on a transportation conformity issue, the USEPA revised the conformity process which had been incorporated into the MOA, rendering the MOA unapprovable. The Illinois EPA would like to revisit the transportation conformity agreement and begin discussions with stakeholders in order to submit an updated transportation conformity plan.

ACTION REQUESTED: Discussion

10.0 Projects in the TIP that qualify for conformity

CMAP maintains a FAQ document that describes the thresholds for including a project in its conformity determination of the TIP and Long Range Plan. This page was recently updated to reflect a distinction between federal approval and projects that are included in the region's conformity determination. This is discussed in the question, "What are the requirements for having a project included in a conformity analysis?" at the top of the 3rd page. CMAP has been asked to bring the discussion to the Tier II Consultation Team.

ACTION REQUESTED: Discussion

11.0 Tracking Projects of Air Quality Concern (PAQC)

The current list of projects is attached. FHWA information on other region's approaches to documenting the need for hot spot analyses can be found here.

ACTION REQUESTED: Information

12.0 Major Capital Project Updates

A brief update on the status of Major Capital Projects is available on the Transportation Committee minutes page.

ACTION REQUESTED: Information

13.0 Other Business

14.0 Public Comment

This is an opportunity for comments from members of the audience. The amount of time available to speak will be at the chair's discretion. It should be noted that the exact time for the public comment period will immediately follow the last item on the agenda.

15.0 Next Meeting

The next meeting will be on call.

16.0 Adjournment

Tier II Consultation Team Members:

	CMAP		FHWA		FTA		IDOT
	IEPA		RTA		USEPA		

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Tier II Consultation Meeting

DRAFT MINUTES – February 19, 2015

Participants:

Patricia Berry	CMAP
Kama Dobbs	CMAP
John Donovan	FHWA
Tony Greep	FTA – via phone
Michael Leslie	USEPA
Ross Patronsky	CMAP
Russell Pietrowiak	CMAP
Mark Pitstick	RTA
Mike Rogers	IEPA – via phone
Chris Schmidt	IDOT OP&P

1.0 Call to Order and Introductions

The meeting was called to order at 10:33 a.m. All participants introduced themselves.

2.0 Agenda Changes and Announcements

None.

3.0 Approval of Minutes – August 21, 2014

On a motion by Mr. Pitstick, seconded by Mr. Leslie the minutes were approved as presented. The team agreed that the posting for the October, 2014 meeting could be removed from the web site, since the meeting did not occur.

4.0 Semi-Annual GO TO 2040 and TIP Conformity Amendment

Ms. Berry reported that the semi-annual GO TO 2040 and TIP conformity amendment was posted for public comment from January 16 – February 16, 2015 and is scheduled to be considered at the March meetings of the CMAP Board and MPO Policy Committee. No comments were received. She also noted that for conformity determinations prior to October 2014, FHWA and FTA typically provided joint approval, via a letter from FHWA that was widely distributed. The current expectation is that separate letters will be issued. She requested that FTA use FHWA's approval schedule and wide distribution.

5.0 Conformity Analysis Method

Mr. Patronsky reported that after attending a recent MOVES training session, staff realized that the portion of the region not subject to the vehicle inspection and maintenance requirement has been treated as though the vehicles were subject to I&M. This has been corrected in the current analysis and the conformity document will be updated. The effect on emissions inventories was minor. He noted that, NOx and $PM_{2.5}$ emissions actually declined slightly, probably due to the different speed distribution in the non-IM part of the region. VOC emissions did go up. Mr. Rogers said that, since the IM program addresses VOC, these results made sense. Mr. Leslie and Mr. Rogers stated this was a reasonable approach and the team concurred.

6.0 09-08-0007 – CH 7 Eldamain Rd from CH 9 Galena to Menards (2,640′ S. of Cornelius Rd)

Ms. Berry reported that this project had federal funding amended into the TIP in March, 2014 that was moved to the Multi-Year B (MYB) list during the rollover to federal fiscal year 2015 and inadvertently not moved back into FFY 2015, as was originally intended. The project is targeting the March 6, 2015 letting and staff requested concurrence to treat the change as an administrative modification. The team concurred with this action.

7.0 State Implementation Plan Update

Mr. Rogers reported that as the Illinois EPA submitted a proposed revision to the motor vehicle emissions budgets contained in the Chicago 8-hour ozone Maintenance Plan on March 28, 2014. The revision was in response to a change in the fleet age distribution between 2008 and 2013. One adverse comment to the proposed change was received; this delayed approval but did not affect the decision. Approval of the revision was published in the Federal Register on October 6, 2014 and became effective in November 2014.

8.0 Ozone NAAQS Update

Mr. Leslie reported that US EPA published a proposed rule updating the ozone NAAQS on December 17, 2014. The rule is subject to a 90-day comment period. The standard must be finalized by October 2015 and will likely become effective in early December, 2015. Assuming this effective date, designations are expected to occur in December, 2017, based on 2014-2016 monitoring data. The proposed rule updates the standard range from the current 75 ppb to a value in the range of 65 – 70 ppb. A secondary standard, addressing impacts on the natural and built environments, is also being proposed. The proposal is for the secondary standard to be the same as the primary standard. He reported that comments are being requested for a standard down to 60 ppb. In response to a question from Mr. Donovan, Mr. Patronsky indicated that comments from CMAP are not anticipated, but that AMPO and AASHTO were likely to comment. Mr. Rogers stated that the Chicago area is anticipated to remain designated as non-attainment based on the proposed standard. Additional locations, including Bloomington, Peoria, and Effingham, would possibly be designated nonattainment at 65 ppb and all portions of the

state with monitors would be nonattainment at 60 ppb. Mr. Leslie noted that historically, USEPA would not set a standard lower than the published proposed rule.

9.0 $PM_{2.5}$ Designations

Mr. Leslie reported that US EPA has signed a final rule designating nonattainment areas under the 2012 $PM_{2.5}$ NAAQS. The rule will be effective 90 days following publication in the Federal Register. Illinois has been designated "unclassifiable" due to issues with the data. This designation means that, while the state remains in maintenance for the 1997 standard, after the 1997 standard is revoked the region will technically be in attainment. There are no anti-backsliding provisions for PM; the only requirements are conformity and new source review. In response to a question from Mr. Rogers, Mr. Leslie stated that US EPA is working with the labs that had data issues, and provisions to address those issues have not been included in the rule so far. In response to questions, Mr. Leslie stated that the samples were corrupted at the lab and that procedures were corrected part way through 2014.

10.0 Conformity Scenario Years

Mr. Patronsky reported that 2015 is a scenario year in the current conformity determination, along with 2025, which corresponds with the maintenance SIP horizon year, 2040, which is the horizon year of GO TO 2040, and 2030, which is no more than 10 years from 2025 and 2040. He stated that beginning in 2016, an additional scenario year is needed in place of 2015, and requested feedback from the members on the appropriate year. The consensus of the team was that 2020 is an appropriate scenario year. Mr. Patronsky stated the new scenario years would take effect for the March 2016 conformity analysis.

11.0 Tracking Projects of Air Quality Concern (PAQC)

Ms. Berry reported that IDOT has hired a new air quality manager and that CMAP staff is continuing to work with IDOT and the new manager on notifications of PAQCs. Mr. Rogers added that East St. Louis recently approved thresholds below which air quality would be handled as part of the NEPA process. Mr. Leslie stated that a problem with thresholds in this region is that they are usually most appropriate for new construction projects, but in northeastern Illinois projects are typically expansions of existing facilities. Ms. Berry stated staff will continue to coordinate with IDOT. In response to a question from Mr. Schmidt, Mr. Rogers confirmed that East St. Louis had officially adopted the thresholds.

12.0 Major Capital Project Updates

Ms. Berry noted that a brief update on the status of Major Capital Projects is available on the Transportation Committee minutes page.

13.0 Other Business

None.

14.0 Public Comment

None.

15.0 Next Meeting

The next meeting was left on call.

16.0 Adjournment

The meeting adjourned at 11:05 a.m.

Tier II Consultation Team Members:

	CMAP		FHWA		FTA		IDOT
	IEPA		RTA		USEPA		

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MEMORANDUM

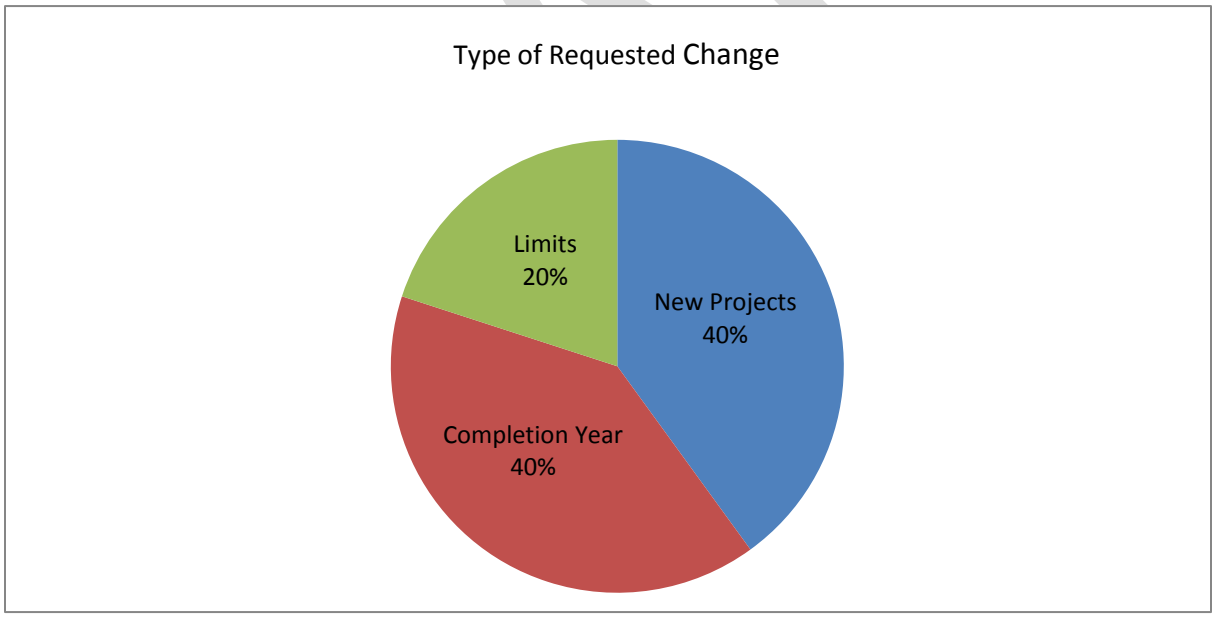
To: **CMAP Transportation Committee**

From: **July 9, 2015**

Date: **CMAP Staff**

Re: **GO TO 2040/TIP Conformity Analysis & TIP Amendments**

In accordance with the semi-annual conformity analysis policy CMAP staff asked programmers to submit changes, additions, or deletions to non-exempt projects for inclusion in the regional air quality analysis of the Transportation Improvement Program (TIP) and GO TO 2040. Of the changes requested, five (5) projects require air quality conformity analysis. Below is a summary of the types of requested changes.



If the TIP amendments are approved, two new non-exempt projects will be included in the TIP. These types of projects are included in the conformity analysis because funding for phases beyond preliminary engineering has been identified in the TIP. Non-exempt and exempt tested projects with only preliminary engineering funding are excluded from conformity analysis.

The new projects are:

- TIP ID 09-15-0015: Adding lanes and replacing a bridge on US 30 from west of Dugan Road to Municipal Road.
- TIP ID 09-15-0019: An intersection improvement, reconstructing the current Collins Road, and extending Collins Road from Blue Heron Drive to Minkler Road.

One project requested a reduction to the original limits of the project:

- TIP ID 10-03-0005 Adding lanes and intersection improvements on Deerfield Road, from US 45 Milwaukee Avenue to Saunders Road in Riverwoods rather than Wilmot Road in Riverwoods.

Two projects are requesting changes to their completion year. The completion year indicates when a project is anticipated to be in service to users. The conformity analysis is conducted for selected analysis years between now and 2040. The analysis years are currently 2015, 2025, 2030 and 2040. If a change in completion year results in moving a project across an analysis year, the project must be included in a new conformity analysis. Sponsors indicated that several projects have updated completion years; two of those crossed an analysis year:

- TIP ID 03-09-0073: Adding lanes, resurfacing, curb and gutter improvements, and lighting on IL 19 Irving Park Road from Schaumburg Road to Bartlett Road, the sponsor has requested changing the completion year from 2015 to 2017.
- TIP ID 12-07-0021: Replacing a bridge, adding a continuous bi-directional turn lane, and adding lanes on Ridge Road from south of Minooka Road to McEvilly Road, the sponsor has requested changing the completion year from 2015 to 2016.

At this time no projects are requesting a scope change. The scope of a project is determined by the work types associated with the project.

- Non-exempt work types may affect air quality and must be tested for conformity. Examples of non-exempt work types are adding lanes to a road, an interchange expansion, signal timing and the major expansion of bus route service.
- Exempt tested work types do not require an air quality conformity analysis, but the region has chosen to include the impacts of projects including these work types in the travel demand model. Exempt tested projects include new commuter parking lots, rolling stock replacement, and road reconstruction with lane widening to standard (e.g., 10 feet to 12 feet).
- Exempt work types do not require an air quality conformity analysis. Examples of exempt work types are intersection improvements and rail station modernization.

TIP projects are also viewable in a map format.

Each TIP ID includes a hyperlink to the TIP database for current project information. Changes can also be seen in the Conformity Amendments report which were coded in the 2015, 2025, 2030, and 2040 highway and transit networks. The regional travel demand model was run using the updated networks. The resultant vehicle miles traveled (VMT) by vehicle class, speed, time of day, and facility type were entered into US Environmental Protection Agency's MOVES model. The model generated on-road emission estimates for each precursor or direct pollutant in each analysis year.

For ozone precursors volatile organic compounds (VOC) and nitrogen oxides (NOx), the resulting emissions inventories estimates fell below the applicable budgets for the maintenance State Implementation Plan (SIP).

Both the annual direct fine particulate ($PM_{2.5}$) and NOx emissions inventories are below the applicable budgets from the attainment SIP.

Direct $PM_{2.5}$ and NOx Emissions in Tons per Year for $PM_{2.5}$ Conformity

	Fine Particulate Matter		Nitrogen Oxides	
Year	Northeastern Illinois	SIP Budget	Northeastern Illinois	SIP Budget
2015	**2,768.10**	5,100.00	**61,168.33**	127,951.00
2025	**1,824.18**	2,377.00	**31,224.61**	44,224.00
2030	**1,752.18**	2,377.00	**29,028.24**	44,224.00
2040	**1,831.11**	2,377.00	**29,766.07**	44,224.00

conformity is demonstrated by comparison of analysis year emissions to the SIP budgets

VOC and NOx Emissions in Tons per Summer Day for Ozone Conformity

	Volatile Organic Compounds		Nitrogen Oxides	
Year	Northeastern Illinois	SIP Budget	Northeastern Illinois	SIP Budget
2015	**76.66**	117.23	**162.53**	373.52
2025	**52.29**	60.13	**80.22**	150.27
2030	**50.70**	60.13	**74.10**	150.27
2040	**53.54**	60.13	**75.67**	150.27

conformity is demonstrated by comparison of analysis year emissions to the SIP budgets

Notes:

Off-model benefits are not included in the total emissions estimates

Results updated as of July 1, 2015

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Conformity Amendments

Project:		Action	Pre-Revision Federal Funds (000)	Post-Revision Federal Funds (000)	Change in Federal Funds (000)	Percentage Change
03-09-0073	Northwest Council of Mayors	Completion Year	$3000	$3500	$ 500	16.67%

IL 19 Irving Park Road FROM Schaumburg Road (COOK/Streamwood) TO Bartlett Road (COOK/Streamwood)

Completion Year Before Revision: 2015
Completion Year After Revision: 2017

Project Work Types Before Revision:
HIGHWAY/ROAD - ADD LANES
HIGHWAY/ROAD - CURB AND GUTTER
SAFETY - LIGHTING
HIGHWAY/ROAD - RESURFACE (WITH NO LANE WIDENING)

Project Work Types After Revision:
HIGHWAY/ROAD - ADD LANES
HIGHWAY/ROAD - CURB AND GUTTER
SAFETY - LIGHTING
HIGHWAY/ROAD - RESURFACE (WITH NO LANE WIDENING)

Financial Data Before Revision	Fund Source	Project Phase	FFY	Total Cost	Federal Cost	Segment
	STP-L	CONSTRUCTION	15	12000	3000	

Financial Data After Revision	Fund Source	Project Phase	FFY	Total Cost	Federal Cost	Segment
	STP-L	CONSTRUCTION	16	12000	3500	

Project:		Action	Pre-Revision Federal Funds (000)	Post-Revision Federal Funds (000)	Change in Federal Funds (000)	Percentage Change
09-15-0015	IDOT District 1 Division of Highways	New Project		$0		

US 30 from W OF DUGAN RD (KANE/Big Rock) to MUNICIPAL RD (KANE/Sugar Grove)

Completion Year: 2020

Project Work Types After Revision:
HIGHWAY/ROAD - ADD LANES
BRIDGE/STRUCTURE - REPLACE

Financial Data After Revision	Fund Source	Project Phase	FFY	Total Cost	Federal Cost	Segment
	NHPP	CONSTRUCTION	MYB	46000	36800	1-78763-0000
	ILL	ENGINEERING-II	15	2851	0	1-78763-0200
	ILL	ENGINEERING-II	16	450	0	1-78763-0210
	ILL	ENGINEERING-II	17	550	0	1-78763-0220
	ILL	ENGINEERING	MYB	5400	0	1-78763-0300
	ILL	ROW ACQUISITION	MYB	350	0	1-78763-0511

Project:		Action	Pre-Revision Federal Funds (000)	Post-Revision Federal Funds (000)	Change in Federal Funds (000)	Percentage Change
09-15-0019	Kendall County Highway Department	New Project		$0		

FAU 2514 Collins Road from FAU 3792 Minkler Road (KENDALL/Oswego) to CH 2 Grove Road (KENDALL/Oswego)

Completion Year: 2021

Project Work Types After Revision:
HIGHWAY/ROAD - RECONST WITH CHANGE IN USE OR WIDTH OF LANE
HIGHWAY/ROAD - NEW ROAD
Hiighway/Road - Roundabout

Financial Data After Revision	Fund Source	Project Phase	FFY	Total Cost	Federal Cost	Segment
	GEN-OP	ENGINEERING-I	17	1000		
	GEN-OP	ENGINEERING-II	18	1500		
	GEN-OP	CONSTRUCTION	19	10000		

Gray Financial Data Records are for informational purposes only and not included in the TIP.
This public notice of the revisions being made by CMAP's Transportation Improvement Program satisfies the Program of Projects requirement of Title 49, U.S. Code Section 5307 (c) (1) through (7)
CMAP, the Chicago Metropolitan Agency for Planning – 233 South Wacker Drive, Suite 800, Chicago, IL 60606 312-454-0400 (voice), 312-454-0411 (fax)

Project:		Action	Pre-Revision Federal Funds (000)	Post-Revision Federal Funds (000)	Change in Federal Funds (000)	Percentage Change
10-03-0005	Lake County Department of Transportation	Location Changed	$0	$5856	$ 5856	

Before Revision: CH A47 DEERFIELD RD from IL 21 US 45 MILWAUKEE AVE (LAKE/Riverwoods) to FAU 2718 WILMOT RD (LAKE/Riverwoods)
After Revision: CH A47 DEERFIELD RD from IL 21 US 45 MILWAUKEE AVE (LAKE/Riverwoods) to CH W24 SAUNDERS ROAD (LAKE/Riverwoods)

Completion Year Before Revision: 2025
Completion Year After Revision: 2025

Project Work Types Before Revision:
HIGHWAY/ROAD - ADD LANES
HIGHWAY/ROAD - INTERSECTION IMPROVEMENT

Project Work Types After Revision:
HIGHWAY/ROAD - ADD LANES
HIGHWAY/ROAD - INTERSECTION IMPROVEMENT
New Bicycle Facility

Financial Data Before Revision

	Fund Source	Project Phase	FFY	Total Cost	Federal Cost	Segment
	MFT-ALL	ENGINEERING-II	16	2000	0	
	MFT-ALL	CONSTRUCTION	MYB	20110	0	

Financial Data After Revision

	Fund Source	Project Phase	FFY	Total Cost	Federal Cost	Segment
	STP-C	ENGINEERING-I	16	2400	1920	
	STP-C	ENGINEERING-II	18	1920	1536	
	STP-C	ROW ACQUISITION	18	3000	2400	
	STP-C	CONSTRUCTION	MYB	7231	5785	
	CTEF	CONSTRUCTION	MYB	19169	0	Includes E3

Project:		Action	Pre-Revision Federal Funds (000)	Post-Revision Federal Funds (000)	Change in Federal Funds (000)	Percentage Change
12-07-0021	Grundy County Highway Department	Completion Year	$2000	$2000	$ 0	0%

Before Revision: FAU 384 RIDGE ROAD FROM FAU 400 (1/4 MI. SOUTH OF) MINOOKA RD (GRUNDY/Minooka) FAU 393 MC EVILLY ROAD
After Revision: FAU 384 RIDGE ROAD from FAU 400 (1/4 MI. SOUTH OF) MINOOKA RD (GRUNDY/Minooka) to FAU 393 MC EVILLY ROAD (GRUNDY/Minooka)

Completion Year Before Revision: 2015
Completion Year After Revision: 2016

Project Work Types Before Revision:
HIGHWAY/ROAD - ADD LANES
BRIDGE/STRUCTURE - REPLACE
HIGHWAY/ROAD - CONTINUOUS BI-DIRECTIONAL TURN LANES

Project Work Types After Revision:
HIGHWAY/ROAD - ADD LANES
BRIDGE/STRUCTURE - REPLACE
HIGHWAY/ROAD - CONTINUOUS BI-DIRECTIONAL TURN LANES

Financial Data Before Revision

	Fund Source	Project Phase	FFY	Total Cost	Federal Cost	Segment
A	GEN-OP	ENGINEERING-II	12	750	0	
	GEN-OP	ROW ACQUISITION	15	100	0	
	GEN-OP	CONSTRUCTION	15	11000	0	
A	ILL	ENGINEERING-I	09	300		
	STP-L	CONSTRUCTION	15	6300	2000	

Financial Data After Revision

	Fund Source	Project Phase	FFY	Total Cost	Federal Cost	Segment
	ILL	ENGINEERING-I	09	300		
	GEN-OP	ENGINEERING-II	12	750	0	
	GEN-OP	ROW ACQUISITION	15	100	0	
	GEN-OP	CONSTRUCTION	15	11000	0	
	STP-L	CONSTRUCTION	15	6300	2000	

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MEMORANDUM

To: **Ross Patronsky**
From: Claire Bozic
Date: August 24, 2015
Re: Calculating Distribution of Counts by Month and MOVES Source Type from IDOT Continuous Count Station Classification Data (DRAFT)

Background

The MOVES Air Quality model requires a number of inputs that are not calculated using the results of the regional travel demand model. One of these inputs is an Excel workbook containing the monthly distribution of vehicle miles traveled by source type (vehicle class). There isn't a source of information which presents regional observed vehicle miles traveled by month. As a proxy for vehicle miles traveled, we used the Illinois Department of Transportation continuous count station data. Only the continuous count stations which provide vehicle class data were used.

Continuous Count Stations

The following table presents the locations of stations which were included in the data received from IDOT. Stations with Y in the drop category were dropped from the analysis because they either had questionable data quality or were missing too much data.

Nearest City	County	Location	Illinois Functional Class Description	Rural/ Urban	Restricted Access	Drop
Fox Lake	Lake	US 12 1.0 mile south of IL 134	Other Principal Arterial	Urban	no	
	Cook	IL 59 0.4 mile south of US 20	Other Principal Arterial	Urban	no	Y
Addison	DuPage	I 290	Interstate	Urban	yes	
Palos Park	Cook	IL 7 NE of West 131st St.	Minor Arterial	Urban	no	Y
Elk Grove Village	Cook	Devon Ave. west of Ridge Ave. and Mittel Blvd	Minor Arterial	Urban	no	
Rosemont	Cook	IL 72 (Higgins Rd.) West of I-294 overpass	Major Collector	Urban	no	
Northbrook	Cook	IL 43 (Waukegan Rd.) NW of Techny Dr.	Other Principal Arterial	Urban	no	
Wheeling	Cook	IL 68 (Dundee Rd.) East of Portwine Rd.	Other Principal Arterial	Urban	no	
Woodridge	DuPage	IL 53 0.02 mi south of 75th St.	Other Principal	Urban	no	Y

			Arterial			
West Chicago	DuPage	IL 64 0.9 mile west of IL 59	Other Principal Arterial	Urban	no	
Hinsdale	DuPage	IL 83 (Kingery Hwy) North of 55th Street overpass	Other Principal Arterial	Urban	yes	Y
Lake Zurich	Lake	IL 22 .14 mile W. of Quentin	Other Principal Arterial	Urban	no	
North Barrington	Lake	IL 59 (Hough Rd.) South of Cresthill Rd.	Other Principal Arterial	Urban	no	
Woodstock	McHenry	US 14 SE of Deep Cut Road	Other Principal Arterial	Rural	no	
Romeoville	Will	IL 53 (Independence Blvd.) North of Taylor Rd.	Other Principal Arterial	Urban	no	Y
Plainfield	Will	IL 126 ne of 143rd St.	Minor Arterial	Urban	no	
Elwood	Will	Arsenal / Manhattan Rd. West of S. Brandon Rd.	Other Principal Arterial	Urban	no	
Peotone	Will	I-57 North of MM 326 at Kennedy Rd. Stub -- South	Interstate	Rural	yes	
Beecher	Will	Peotone/Beecher Road west of Kedzie Ave.	Other Principal Arterial	Urban	no	Y
Joliet	Will	I 80 east of Cherry Hill Road	Interstate	Urban	yes	
Minooka	Will	I-80 NE of Shepley Rd Overpass	Interstate	Urban	yes	
Braidwood	Will	I-55 North of Reed Rd. Exit 233 -- North of MM 234	Interstate	Rural	yes	

Here are the numbers and types of station used in the analysis. There were originally 22 stations in the dataset. Six were dropped, which left sixteen in the dataset.

	Retained		
	Unrestricted	Restricted	Total
Rural	1	2	3
Urban	10	3	13
Total	11	5	16

	Dropped		
	Unrestricted	Restricted	Total
Rural	0	0	0
Urban	5	1	6
Total	5	1	6

Dataset Description

Datasets were obtained at two different times. The first dataset included only data from 2011. The data was presented by station, direction, and lane of travel. It included records representing hours 1 – 24. The second dataset covered the years 2012 – 2014. This dataset was aggregated by station without lane and direction of travel information but also included hourly records for each data of the time period. To make the two datasets compatible, the 2011 data was aggregated to the station level, eliminating the lane and direction information. The two datasets were then combined and used together for a total of four years of continuous count data with vehicle classes for sixteen stations.

Each record in the dataset represents one hour of one calendar day. Theoretically, for each station there are 24 records for each day of each year. Each record presents a vehicle count by 13 FHWA vehicle category classifications. IDOT's datasets also include class 14 "unknown" and class 15 "unclassified."

Assignment of FHWA Classes to MOVES Classes

The following table shows which continuous count station vehicle classes were assigned to each MOVES source type (vehicle) category. It was immediately clear that no FHWA class exists for MOVES category 54, motor home. That category was estimated using National Park Service RV camper statistics for 2013 and 2014 instead.

MOVES Vehicle Class	FHWA Vehicle Category
11 Motorcycle	Class 1 Motorcycles
21 Passenger car	Class 2 Passenger cars
31 Passenger trucks	Class 3 Four tire single unit
32 Light commercial truck	Class 5 Two Axle, six tire single unit
41 Intercity bus 42 Transit bus 43 School bus	Class 4 Buses
51 Refuse truck 52 Single unit short haul truck 53 Single unit long haul truck	Class 6 Three axle, single unit Class 7 Four or more axle, single unit
54 Motor home	Included in Class 5, with no way to identify them. Use National Park Service data
61 Combination short-haul truck 62 Combination long-haul truck	Class 8 Four or less axle, single trailer Class 9 Five axle tractor semi-trailer Class10 Six or more axle, single trailer Class 11 Five or less axle, multi trailer Class 12 Six axle, multi trailer Class 13 Seven or more axle, multi trailer

Method

1. Hourly data by station, month, and day of week were averaged to develop an average count by station, month, day of week (Sunday – Saturday), and hour of day.
2. The average hour was aggregated to a number representing an average count for each station by month and day of week for each of the vehicle classes. For example, Mondays in January, Tuesdays in January, etc.
3. The average weekdays for each station, by month, were multiplied by the average number of those days for each month, over the 2011 – 2014 period, resulting in an average month for each station.
4. The station average months were combined into a single total for each month. One expressway station which had not included any observations for the month of February was retained, and an estimate for February counts was calculated from the average of January and March counts.

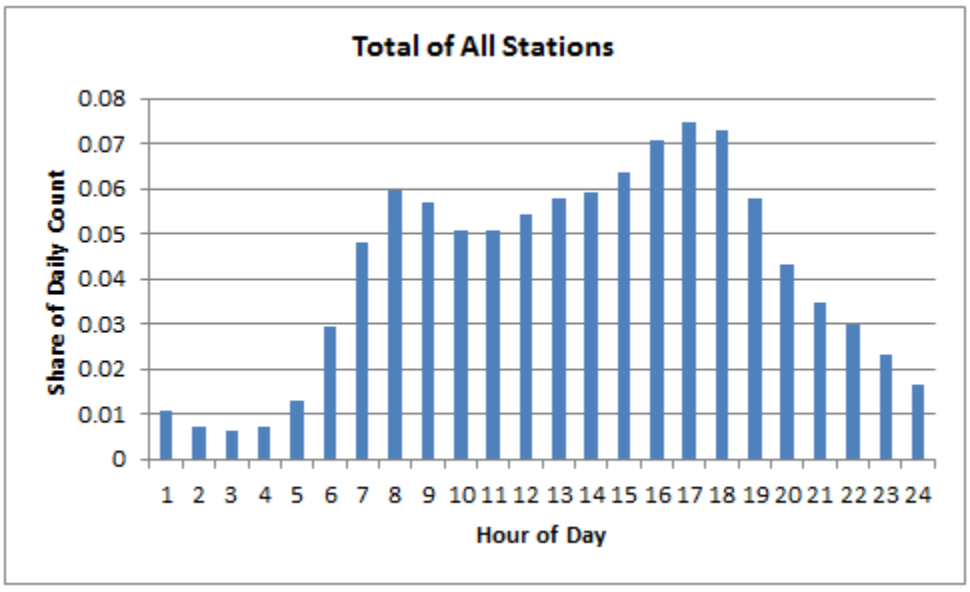
Average Number of Days per Month 2011 – 2014

These are the average numbers of each day of week for each month over the data period. For example, an average Sunday in January was calculated from the four years of data. It was then multiplied by 4.5 to represent the average number of Sundays in January for the dataset.

Average Number of Days per Month 2011-2014								
Month	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
January	4.5	4.5	4.5	4.5	4.5	4.25	4.25	31
February	4	4	4	4.25	4	4	4	28.25
March	4.5	4.25	4.25	4.25	4.5	4.5	4.75	31
April	4.25	4.5	4.5	4.25	4	4.25	4.25	30
May	4.25	4.25	4.5	4.5	4.75	4.5	4.25	31
June	4.5	4.25	4	4.25	4.25	4.25	4.5	30
July	4.5	4.5	4.75	4.5	4.25	4.25	4.25	31
August	4.25	4.25	4.25	4.5	4.5	4.75	4.5	31
September	4.5	4.5	4.25	4	4.25	4.25	4.25	30
October	4.25	4.5	4.5	4.75	4.5	4.25	4.25	31
November	4.25	4	4.25	4.25	4.25	4.5	4.5	30
December	4.5	4.75	4.5	4.25	4.25	4.25	4.5	31
Grand Total	52.25	52.25	52.25	52.25	52	52	52.25	365.25

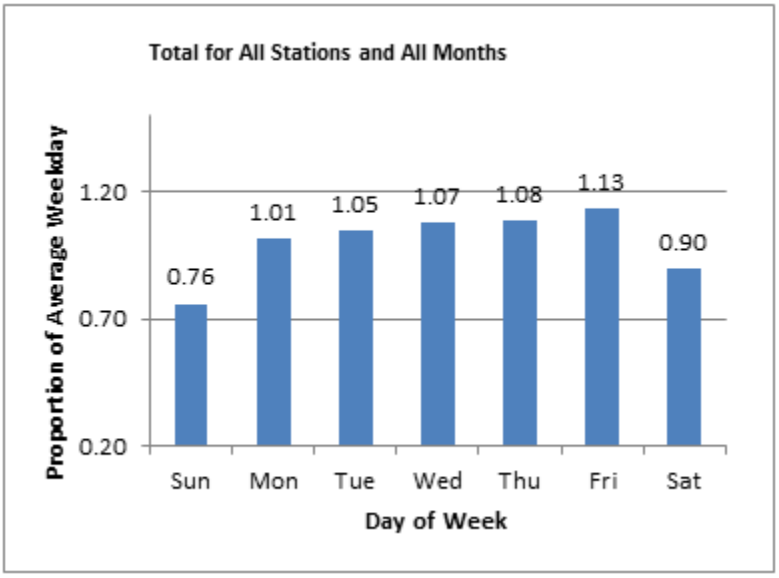
Average Hour by Station

A plot of each station's average hourly volume, summed for all the months and days, was produced to ensure that the distribution of hourly volumes looked reasonable. All of the station average hourly volumes were summed and presented in the following chart. The shape of the distribution for each station resembled the total for all stations, with some variation.



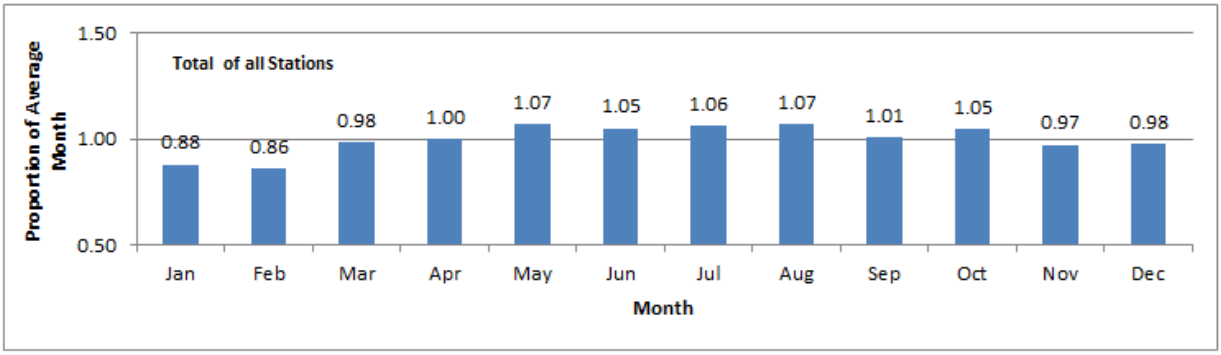
Average Day of Week

The average day of week, generated by aggregating the average hours of each weekday per month, was also calculated. This was undertaken to ensure the data processing was working correctly. Charts for each station were produced and reviewed. They resembled the following chart, which is a summary of all the total average day of week volumes for all stations.



Average Month

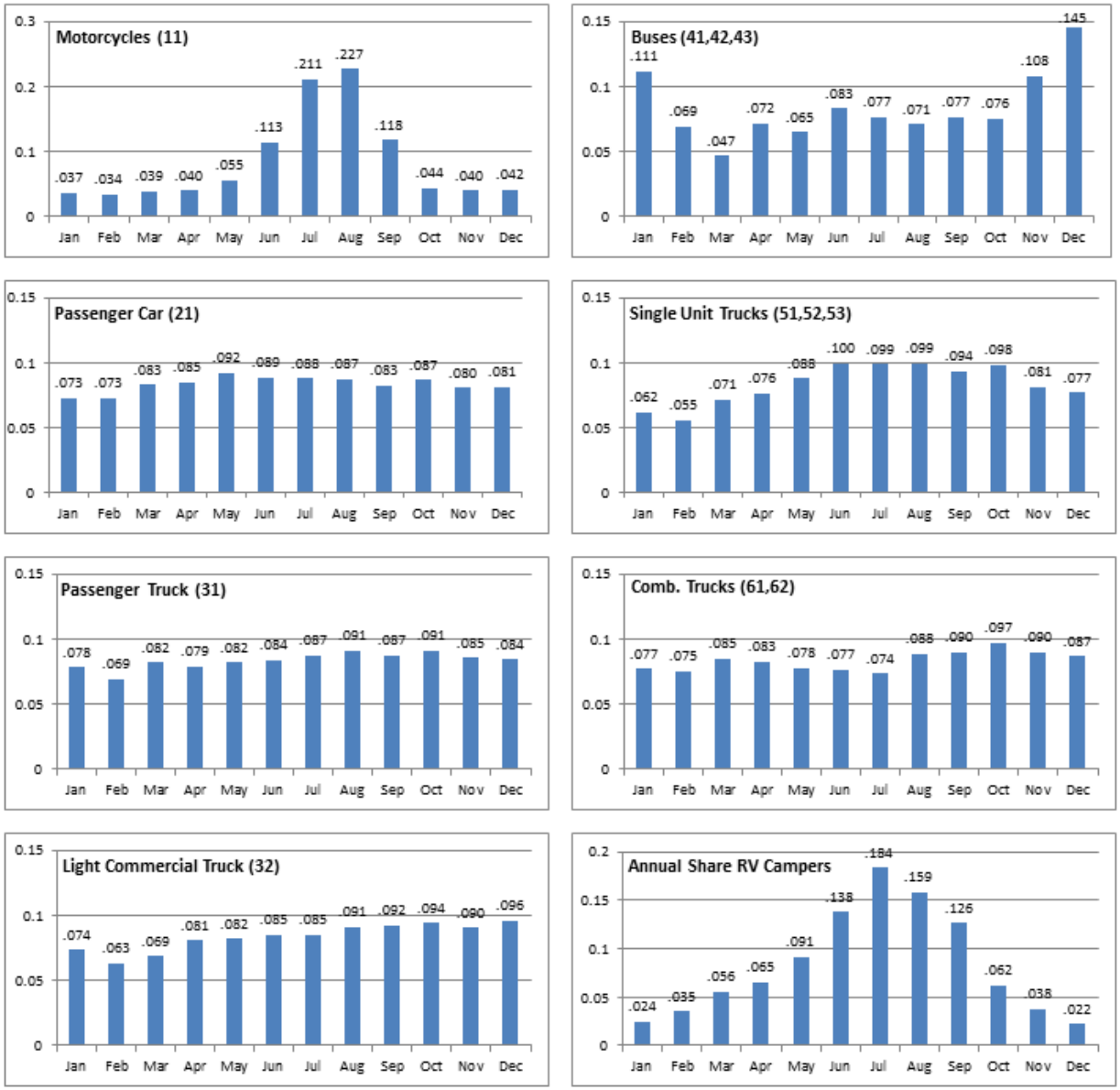
Charts of the distribution of monthly total volume were produced for each station and reviewed. The charts showed generally higher volumes in the warmer months and lower volumes in the winter months. All the stations were combined into the following chart, showing the relationship of the monthly volumes to an average month, for all stations.



MOVES Inputs

Once we were satisfied that the distribution of total volume by hour of day, day of week, and month of year looked reasonable, the same method was used to generate the class volume distributions needed by the MOVES model. These charts present the monthly distributions for

the MOVES vehicle classes. Note tha the RV campers chart presents data from the National Park Service and not the IDOT ATC system.



Source: Illinois Department of Transportation 2011 - 2014 continuous count station/ class data except mobile home.
Source: (RV/Mobile Home): National Park Service RV Camper Statistics 2013-2014

From these charts we determined that the bus distribution looks strange. Also, MOVES software requires school bus, public transit bus, and inter city bus distributions as inputs. The ATC system has a class for buses, but not the three types of buses. We decided to use different information to develop the bus distributions, which will be discussed in the next section.

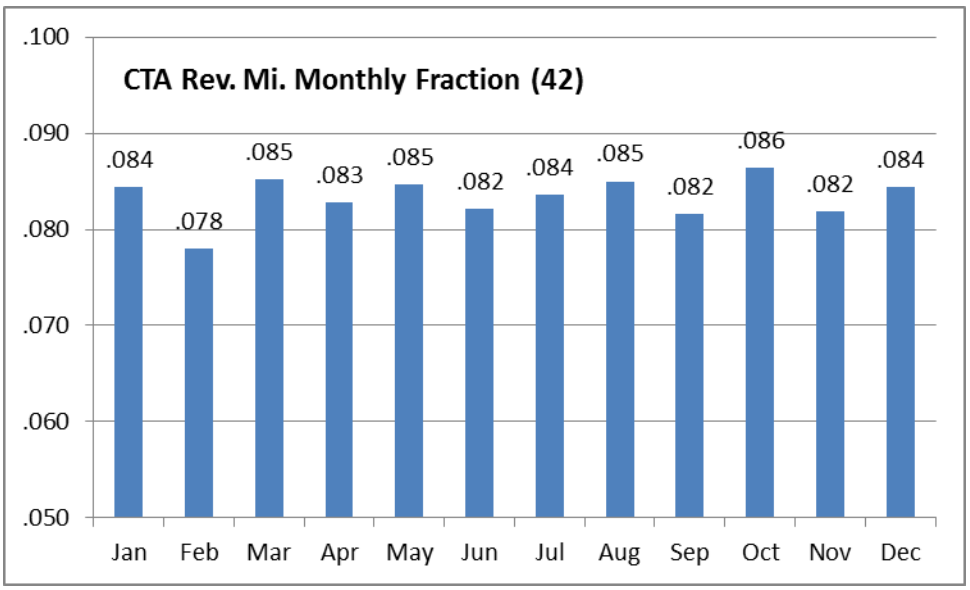
The motorcycle information also showed an unexpected distribution, with what appeared to be an unreasonably high peak in July and August. We believe that counts should be lower in the cold months and higher in the warm months, but this seemed too extreme. We looked at other data to try to determine if this was likely, and decided to use an alternative data source for the motorcycle distribuion instead.

Buses

As stated previously, the distribution of bus counts from the ATC system did not show an explainable pattern, and was not used. It is not possible for us to determine whether the counting equipment has difficulty identifying the difference between buses and some other class of vehicle, or if there are patterns in the bus data based on underlying conditions we are unaware of. In any case, bus traffic represents less than 1% of counted vehicles. Instead of using the ATC data for buses, other sources of information were consulted.

Transit Buses

CTA provided a summary of monthly revenue miles for buses for the years 2011 – 2014. Conversation with CTA staff indicated that they did not adjust bus revenue miles by month or season. The data supported this, with the monthly share looking similar to the month's share of days. This data was used for the MOVES input.

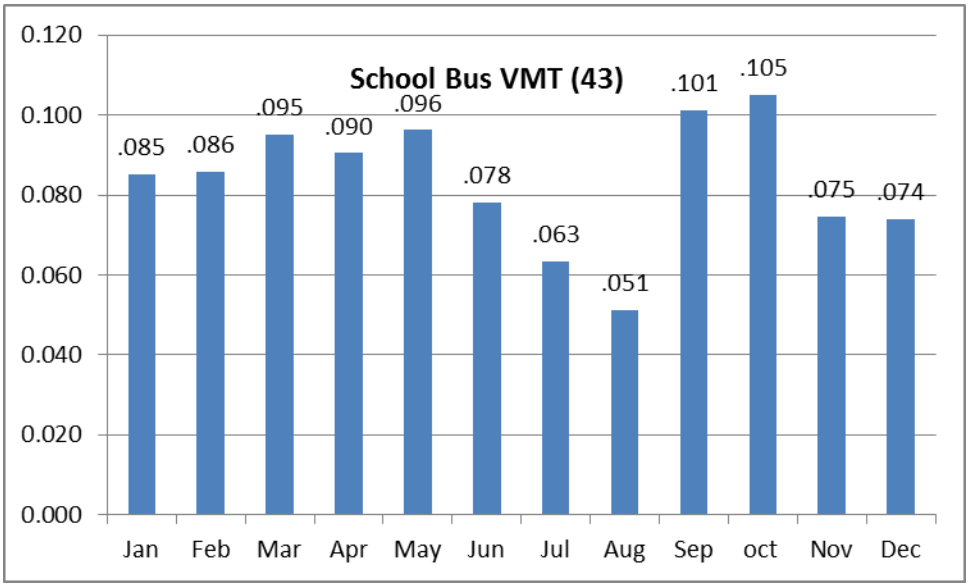


Interurban Buses

Data from DePaul University Chaddick Institute intercity bus research program, and from commercial bus providers was requested. Data on the monthly distribution of service was not available, so the same distribution as the public transit bus was used.

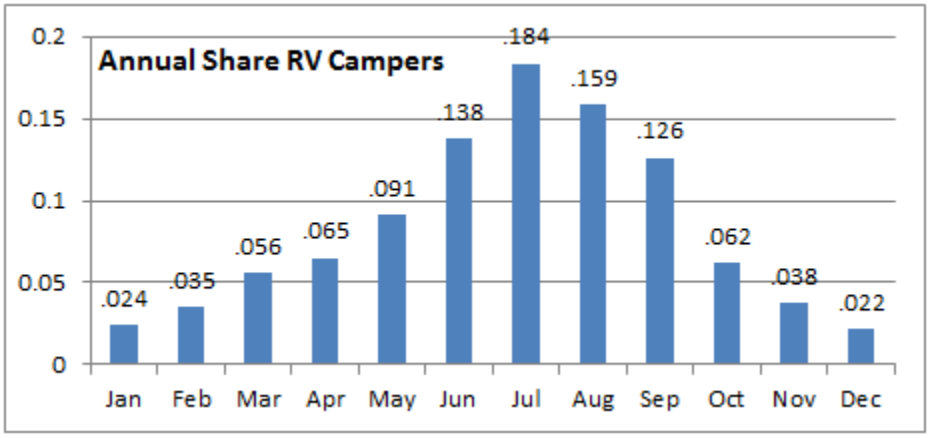
School Buses

For school buses, it seemed reasonable to assume that the amount of service provided reflects in-school days on the school calendar. The school 2014-2015 calendars for the biggest district in each county (Cook SD 99, DuPage CUSD 204, Kane SD U-46, Lake CUSD 60, McHenry Cons SD 158 and Will SD 202) were collected. Note that the biggest school district in Lake County is Waukegan District 60. That school had a long-lasting strike during the 2014-2015 school year. The original school schedule was still available online, and that was used rather than the calendar including changes caused by the strike. Summer program schedules and whether bus service is provided was also reviewed. This data was used for school bus vehicles.



Motor Homes

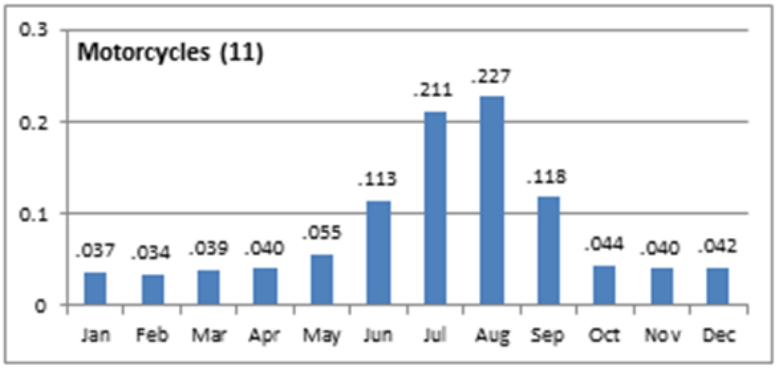
The IDOT counts include motor homes in class 5 vehicles, but there is no way to separate them from other class 5 vehicles. Since the motor home is generally a recreational vehicle (RV) we assumed that the travel characteristics are similar to RV's in general. The National Park Service keeps monthly and annual summaries of RV campers using the national park system. I collected these statistics for each month for the years 2013 and 2014, and calculated the monthly share of the total. It looked reasonable, with RV usage happening throughout the year but peaking in the summer months.



Motorcycles

As previously described, continuous count station classification data was analyzed. The resulting distribution of motorcycle counts by month is quite different from what we have used in the past, and we questioned whether this was a realistic distribution of values. We desired other sources of information to confirm the data generated from the count stations. The tollway

transaction data we have were not useful for this purpose because the tollway doesn't count motorcycle toll transactions differently from auto transactions.



This chart presents the vehicle counts derived from the IDOT ATC data. The data showed a significant peak in July and August.

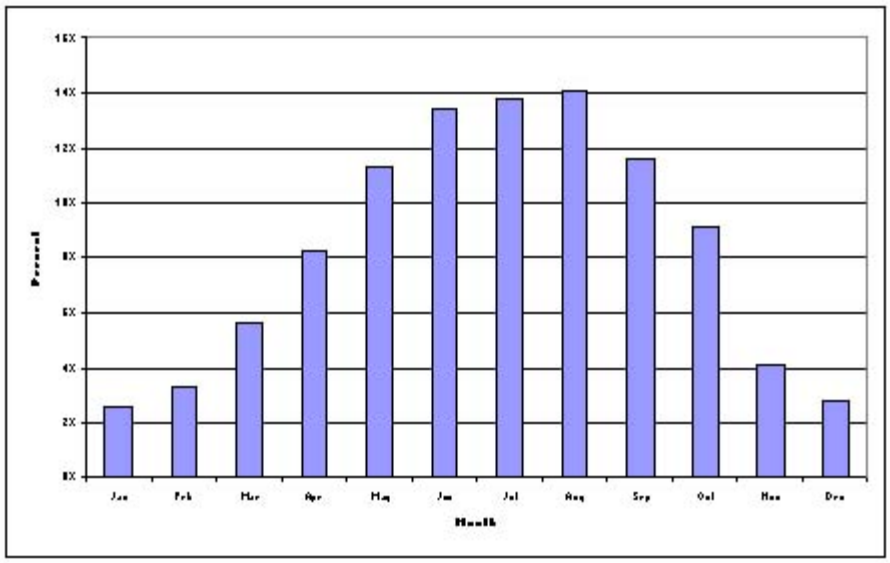
Detection Technology

Is it possible the ATC system does not count motorcycles very well? NCHRP Report 760 "Improving the Quality of Motorcycle Travel Data Collection" (2013) http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_760.pdf includes a table showing that inductive loops such as those used in the IDOT traffic count program are not highly accurate for counting motorcycles. Discussing this with IDOT data staff, we learned that motorcycles may not be heavy enough to be counted, or they may be driving at the edge of a lane. In addition, IDOT staff observed that two of the four winters covered by the data were especially cold and lengthy. This may have depressed the cold month readings, making the summer peak also appear higher than it normally would.

Other Data Sources

Another way to estimate the relative amount of motorcycle travel is to review crash statistics, since the number of crashes are linked to the amount of usage. The National Highway Traffic Safety Administration produced a report that included statistics about motorcycle fatalities by month. Figure 10 represents the **national** statistics of motorcycle fatalities by month from the report "Evaluation of the Repeal of Motorcycle Helmet Laws in Kentucky and Louisiana." (http://www.nhtsa.gov/people/injury/pedbimot/motorcycle/kentuky-la03/NatTrends.html, National Highway Traffic Safety Administration, October 2003)

Figure 10. Percent of Motorcyclists Killed by Month (Source: FARS)



Although it is difficult to see, the scale goes from 0% to 16% by two's. This chart reflects national trends. June, July, and August are the months with the highest fatalities, with each of their shares of annual fatalities being around 14%.

The report also says "The riding season is longer in states with more temperate climates. The 'southern tier' states CA, AZ, NM, TX, LA, MS, AL, FL and GA recorded about 17 percent of motorcyclist deaths in December, January and February, while the "northern tier" states WA, MT, ND, MN, WI, MI, OH, PA, NY, VT, NH, and ME recorded just over two percent of their fatalities during those months." This implies a significantly reduced amount of motorcycle use in the winter month, with a much higher share in the summer months.

Not to belabor the point, but from the Insurance Institute for Highway Safety national statistics:

http://www.iihs.org/iihs/topics/t/motorcycles/fatalityfacts/motorcycles/2013

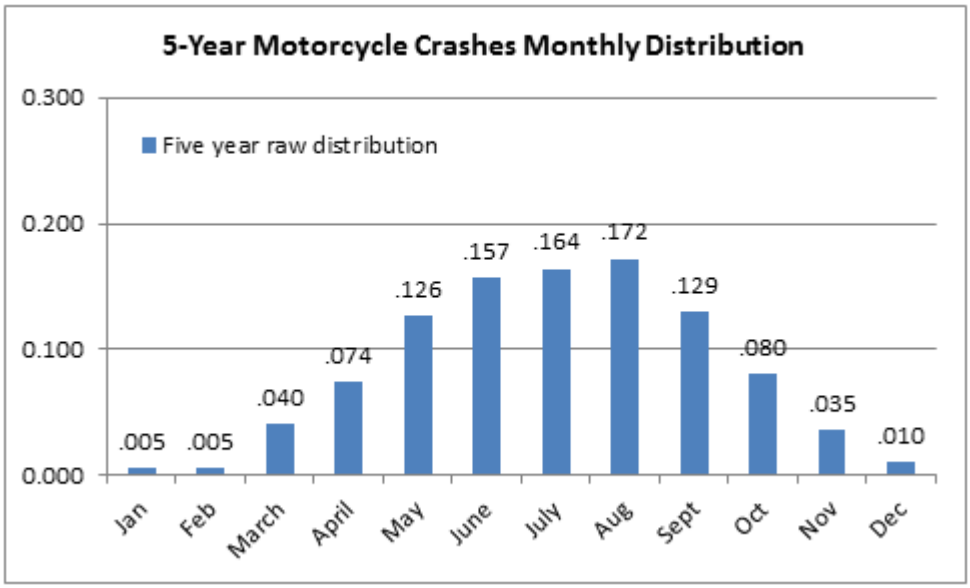
National 2013 Fatalities

Month	Deaths	%
January	148	3
February	121	3
March	271	6
April	369	8
May	464	11
June	534	12
July	530	12
August	630	14
September	557	13

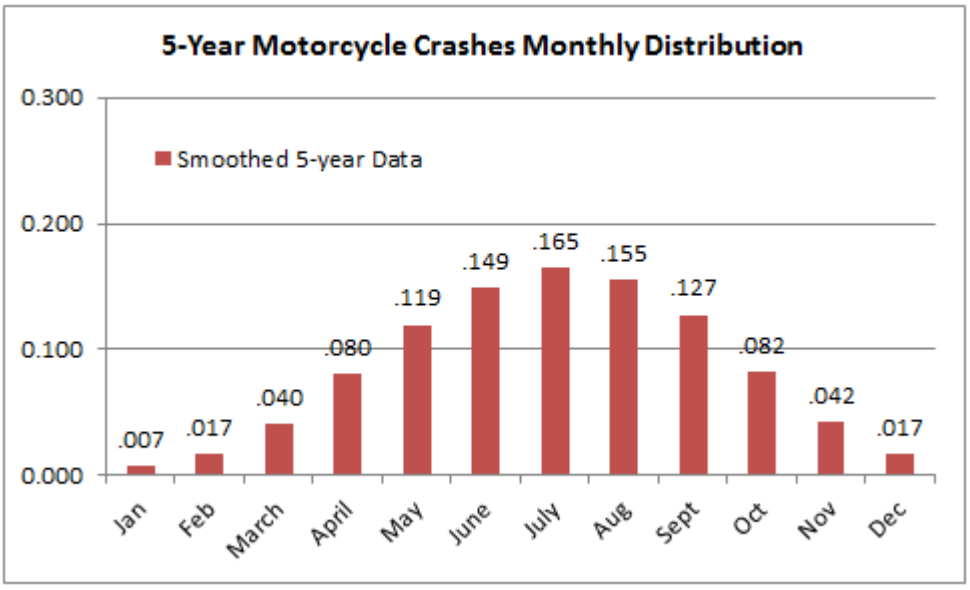
October	391	9
November	244	6
December	122	3
Total	4,381	100

None of the crash data shows the high peak of crashes in July and August that would seem to reflect the pattern in the IDOT ATC data. It seems likely that the ATC technology does not count motorcycles very well.

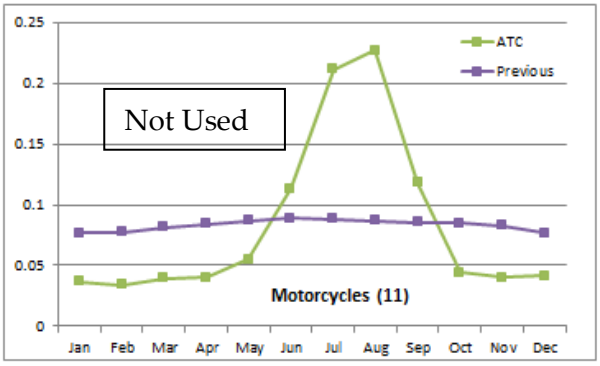
CMAP has good local information for motorcycle crashes from the Illinois Department of Transportation safety department. The following chart shows the distribution of five years of northeastern Illinois motorcycle crashes. The data includes crashes for seven counties and all severities. It does not show the same peak in crashes in July and August as I have calculated from the continuous count station data.

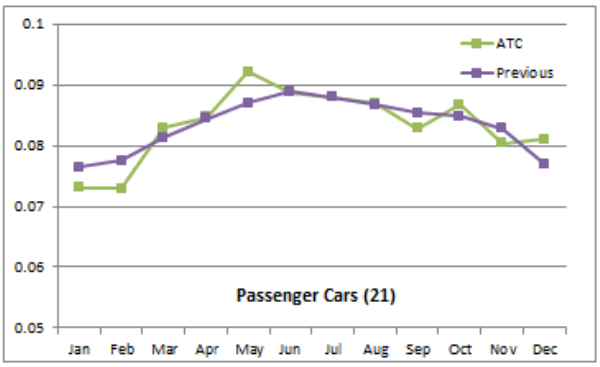


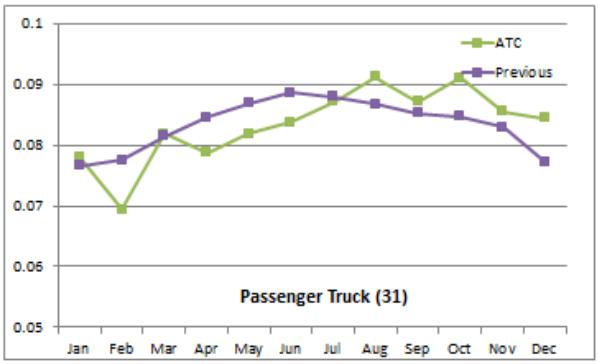
To attempt some adjustment for the likelihood that cold weather riders are more experience and safer than summer riders, I calculated a 3-month moving average to smooth the curve a little more. The effect was to reduce the summer peak a little and increase the winter percents. I think this approximates the monthly share of motorcycle VMT better, and can be used in the MOVES model instead of the ATC data.

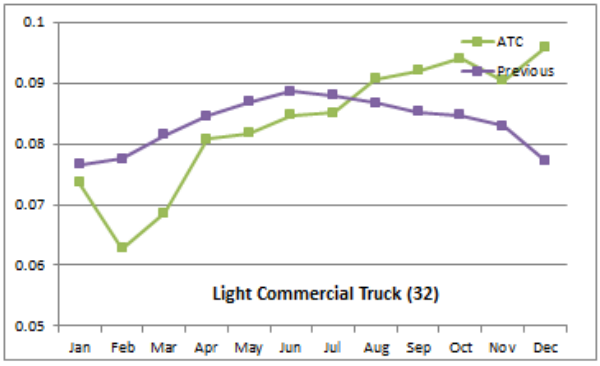

5-Year Motorcycle Crashes Monthly Distribution
0.300
0.200
0.100
0.000
Smoothed 5-year Data
.007
.017
.040
.080
.119
.149
.165
.155
.127
.082
.042
.017
Jan
Feb
March
April
May
June
July
Aug
Sept
Oct
Nov
Dec

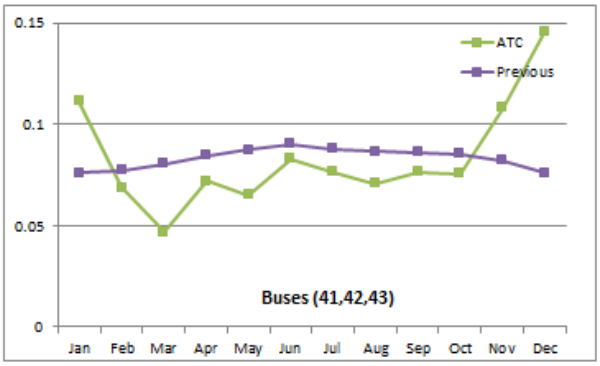
Comparison with Data Previously Used

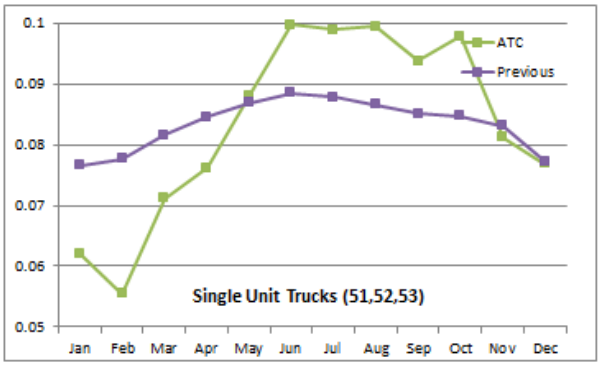


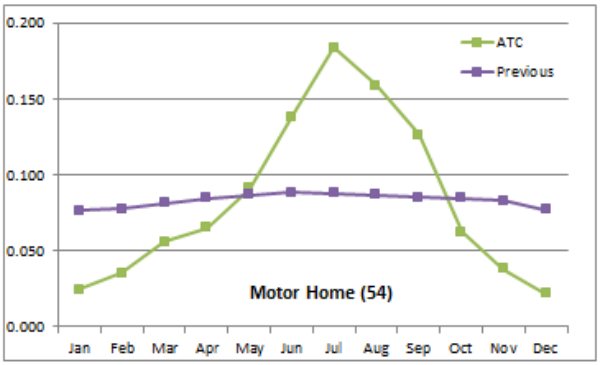


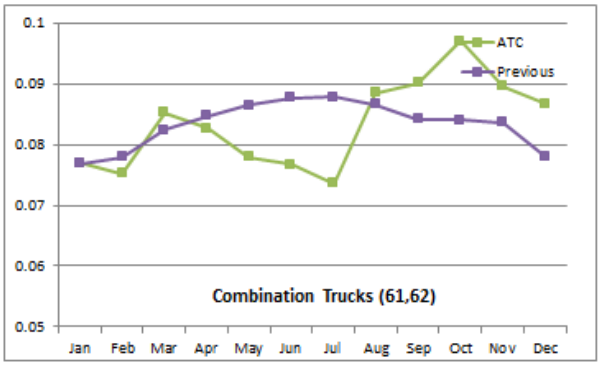






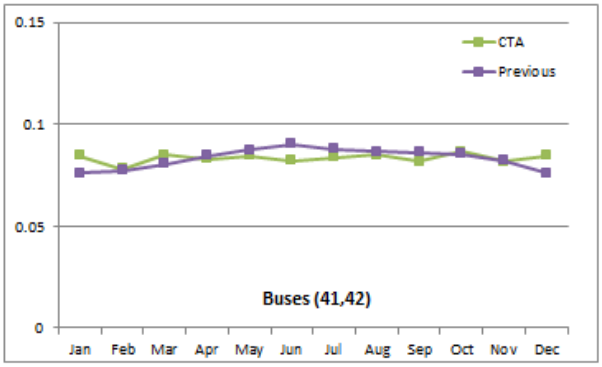


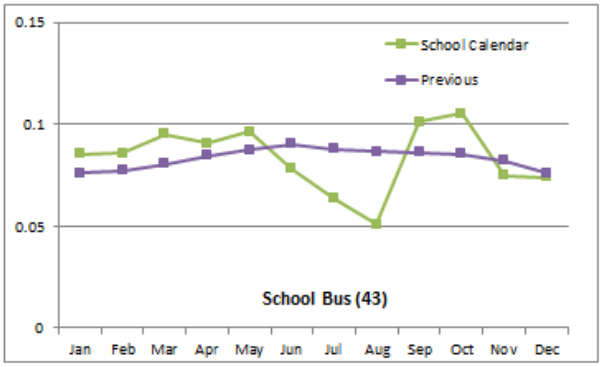




Note: motor home data is from the National Park Service, and the bus data shown here from ATC was not used. See following section for that.

Bus Data Used (from other sources)





Chicago Metropolitan Agency for Planning

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www.cmap.illinois.gov

MEMORANDUM

To: **File**
From: Claire Bozic
Date: August 24, 2015
Re: Day of Week Distribution MOVES Input File Development (DRAFT)

Background

The MOVES Air Quality model requires a number of inputs that are not calculated using the results of the regional travel demand model. One of these inputs is an Excel workbook containing the distribution of vehicle miles traveled by source type (vehicle class), by month, facility type, and by day of week. There isn't a source of information which presents regional observed vehicle miles traveled by month. As a proxy for vehicle miles traveled, we used the Illinois Department of Transportation continuous count station data. Only the continuous count stations which provide vehicle class data were used.

MOVES Input File Excerpt

The resulting file resembles the excerpt below. The day VMT fraction should add to 1 for each month and road type within the vehicle class.

sourceTypeID	monthID	roadTypeID	dayID	dayVMTFraction
21	1	1	2	0.22809
21	1	1	5	0.77191
21	1	2	2	0.279201
21	1	2	5	0.720799
21	1	3	2	0.233973
21	1	3	5	0.766027
21	1	4	2	0.230606
21	1	4	5	0.769394
21	1	5	2	0.213409
21	1	5	5	0.786591

sourceTypeID = each of the 13 MOVES vehicle classes (discussed later)
monthID = 1-12, representing January – December
roadTypeID = 1: off network, 2: rural Restricted, 3: rural unrestricted 4: urban restricted 5: urban unrestricted
dayID = 2 : weekends, 5 : weekdays

Continuous Count Stations

The following table presents the locations of stations which were included in the data received from IDOT. Stations with Y in the drop category were dropped from the analysis because they either had questionable data quality or were missing too much data.

Nearest City	County	Location	Illinois Functional Class Description	Rural/ Urban	Restricted Access	Drop
Fox Lake	Lake	US 12 1.0 mile south of IL 134	Other Principal Arterial	Urban	no	
	Cook	IL 59 0.4 mile south of US 20	Other Principal Arterial	Urban	no	Y
Addison	DuPage	I 290	Interstate	Urban	yes	
Palos Park	Cook	IL 7 NE of West 131st St.	Minor Arterial	Urban	no	Y
Elk Grove Village	Cook	Devon Ave. west of Ridge Ave. and Mittel Blvd	Minor Arterial	Urban	no	
Rosemont	Cook	IL 72 (Higgins Rd.) West of I-294 overpass	Major Collector	Urban	no	
Northbrook	Cook	IL 43 (Waukegan Rd.) NW of Techny Dr.	Other Principal Arterial	Urban	no	
Wheeling	Cook	IL 68 (Dundee Rd.) East of Portwine Rd.	Other Principal Arterial	Urban	no	
Woodridge	DuPage	IL 53 0.02 mi south of 75th St.	Other Principal Arterial	Urban	no	Y
West Chicago	DuPage	IL 64 0.9 mile west of IL 59	Other Principal Arterial	Urban	no	
Hinsdale	DuPage	IL 83 (Kingery Hwy) North of 55th Street overpass	Other Principal Arterial	Urban	yes	Y
Lake Zurich	Lake	IL 22 .14 mile W. of Quentin	Other Principal Arterial	Urban	no	
North Barrington	Lake	IL 59 (Hough Rd.) South of Cresthill Rd.	Other Principal Arterial	Urban	no	
Woodstock	McHenry	US 14 SE of Deep Cut Road	Other Principal Arterial	Rural	no	
Romeoville	Will	IL 53 (Independence Blvd.) North of Taylor Rd.	Other Principal Arterial	Urban	no	Y
Plainfield	Will	IL 126 ne of 143rd St.	Minor Arterial	Urban	no	
Elwood	Will	Arsenal / Manhattan Rd. West of S. Brandon Rd.	Other Principal Arterial	Urban	no	
Peotone	Will	I-57 North of MM 326 at Kennedy Rd. Stub -- South	Interstate	Rural	yes	
Beecher	Will	Peotone/Beecher Road west of Kedzie Ave.	Other Principal Arterial	Urban	no	Y
Joliet	Will	I 80 east of Cherry Hill Road	Interstate	Urban	yes	
Minooka	Will	I-80 NE of Shepley Rd Overpass	Interstate	Urban	yes	

Braidwood	Will	I-55 North of Reed Rd. Exit 233 -- North of MM 234	Interstate	Rural	yes	

Here are the numbers and types of station used in the analysis. There were originally 22 stations in the dataset. Six were dropped, which left sixteen in the dataset.

	Retained		
	Unrestricted	Restricted	Total
Rural	1	2	3
Urban	10	3	13
Total	11	5	16

	Dropped		
	Unrestricted	Restricted	Total
Rural	0	0	0
Urban	5	1	6
Total	5	1	6

Dataset Description

Datasets were obtained at two different times. The first dataset included only data from 2011. The data was presented by station, direction, and lane of travel. It included records representing hours 1 – 24. The second dataset covered the years 2012 – 2014. This dataset was aggregated by station without lane and direction of travel information and also included hourly records for each date. To make the two datasets compatible, the 2011 data was aggregated to the station level, eliminating the lane and direction information. The two datasets were combined and used together.

Each record in the dataset represents one hour of one calendar day. Theoretically, for each station there are 24 records for each day of the year. Each record presents a vehicle count by 13 FHWA vehicle category classifications. IDOT's datasets also include class 14 "unknown" and class 15 "unclassified."

Assignment of FHWA Classes to MOVES Classes

The following table shows which continuous count station vehicle classes were assigned to each MOVES source type (vehicle) category.

MOVES Vehicle Class	FHWA Vehicle Category
11 Motorcycle	Class 1 Motorcycles
21 Passenger car	Class 2 Passenger cars
31 Passenger trucks	Class 3 Four tire single unit
32 Light commercial truck	Class 5 Two Axle, six tire single unit
41 Intercity bus 42 Transit bus 43 School bus	Class 4 Buses
51 Refuse truck 52 Single unit short haul truck 53 Single unit long haul truck	Class 6 Three axle, single unit Class 7 Four or more axle, single unit
54 Motor home	Included in Class 5 and can't be pulled out – used equal daily distribution
61 Combination short-haul truck	Class 8 Four or less axle, single trailer

62 Combination long-haul truck	Class 9 Five axle tractor semi-trailer Class10 Six or more axle, single trailer Class 11 Five or less axle, multi trailer Class 12 Six axle, multi trailer Class 13 Seven or more axle, multi trailer

Method

1. Hourly data by station, month, and day of week were averaged to develop an average count by station, month, day of week (Sunday – Saturday), and hour of day.
2. The average hour was aggregated to a number representing an average count for each station by month and day of week for each of the vehicle classes. For example, Mondays in January, Tuesdays in January, etc.
3. The average weekdays counts for each station, by month, were then multiplied by the average number of those days for each month, over the 2011 – 2014 period (shown below), resulting in an the total expected volume for each month, day of week, by station and by vehicle class.
4. One expressway station which had not included any observations for the month of February was retained, and an estimate for February counts was calculated from the average of January and March counts.

Average Number of Days by Type per Month 2011 – 2014

Average Number of Days per Month 2011-2014								
Month	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
January	4.5	4.5	4.5	4.5	4.5	4.25	4.25	31
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May	4.25	4.25	4.5	4.5	4.75	4.5	4.25	31
June	4.5	4.25	4	4.25	4.25	4.25	4.5	30
July	4.5	4.5	4.75	4.5	4.25	4.25	4.25	31
August	4.25	4.25	4.25	4.5	4.5	4.75	4.5	31
September	4.5	4.5	4.25	4	4.25	4.25	4.25	30
October	4.25	4.5	4.5	4.75	4.5	4.25	4.25	31
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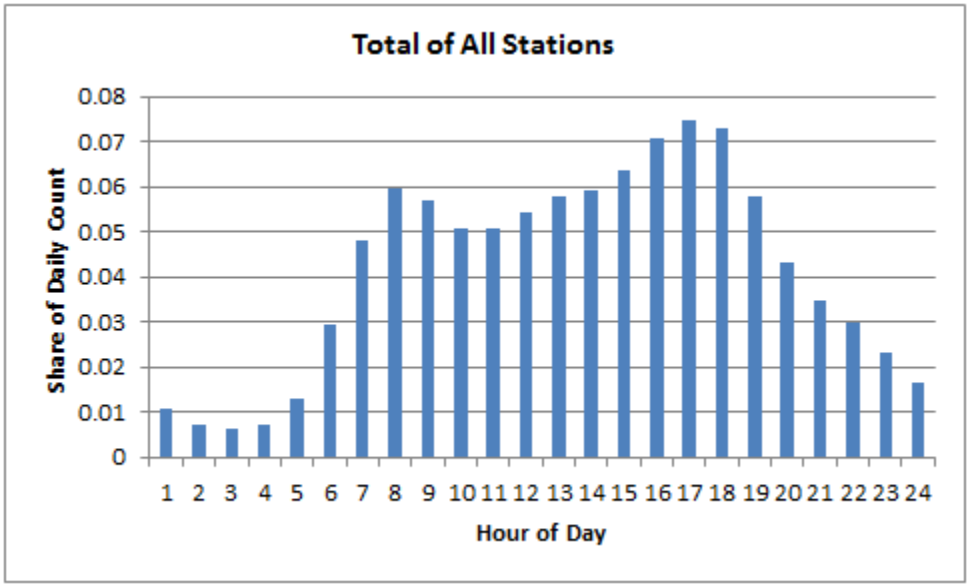
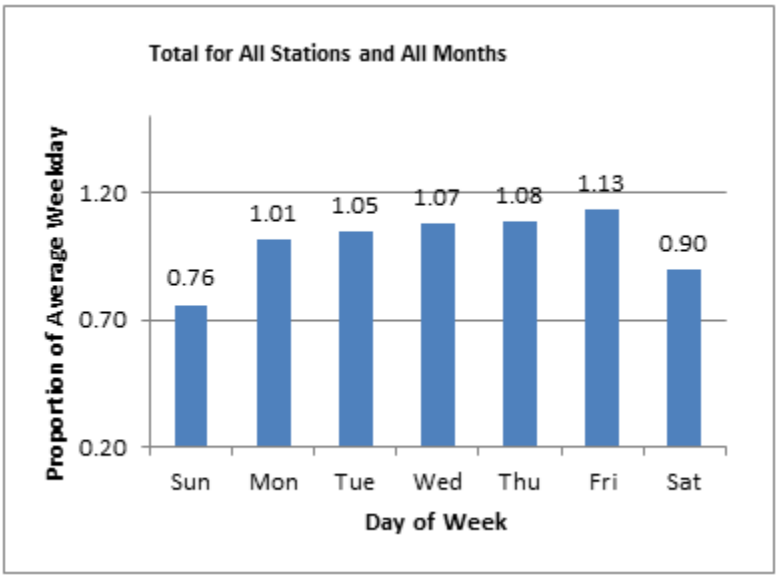
Average Hour by Station

A plot of each station's average hourly volume, summed for all the months and days, was produced to ensure that the distribution of hourly volumes looked reasonable. All of the station average hourly volumes were summed and presented in the following chart. The shape of the distribution for each station resembled the total for all stations, with some variation.



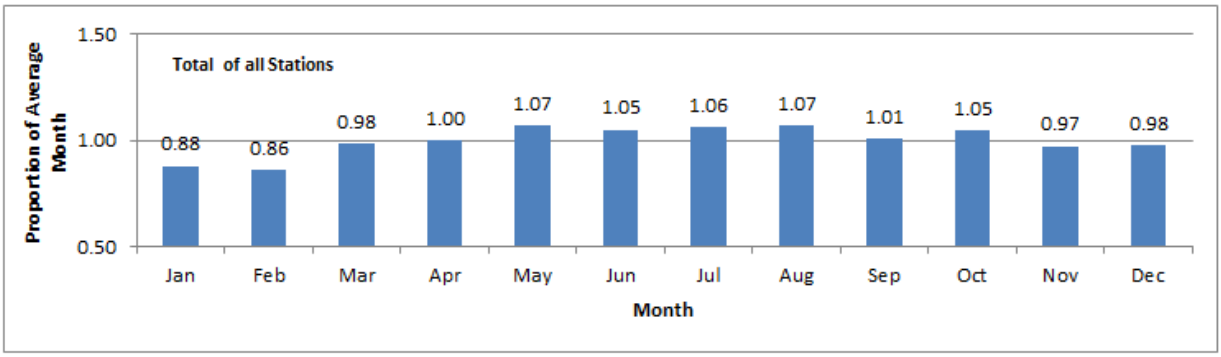
Average Day of Week

The average days of week, generated by aggregating the average hour of each weekday per month, was then calculated. Charts for each station were produced and reviewed. They resembled the following chart, which is a summary of all the total average day of week volumes for all stations.



Average Month

Charts of the distribution of monthly total volume were produced for each station and reviewed. The charts showed generally higher volumes in the warmer months and lower volumes in the winter months. All the stations were combined into the following chart, showing the relationship of the monthly volumes to an average month, for all stations.

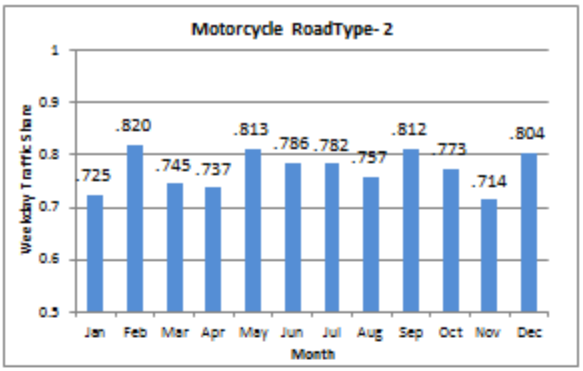


MOVES Inputs

Once we were satisfied that the distribution of total volume by hour of day, day of week, the final file of volumes by station, vehicle, month, and day of week (monthly expected sum for each day) was imported to a spreadsheet where MOVES input data could be developed. The volume data by station, month, day of week was summarized into facility type (urban/rural, restricted access/unrestricted access) and MOVES days (weekdays/weekends) for each class of vehicle. The following charts show the proportion of weekday traffic to weekend traffic for each month.

Motorcycle and Auto Distributions

Rural Restricted



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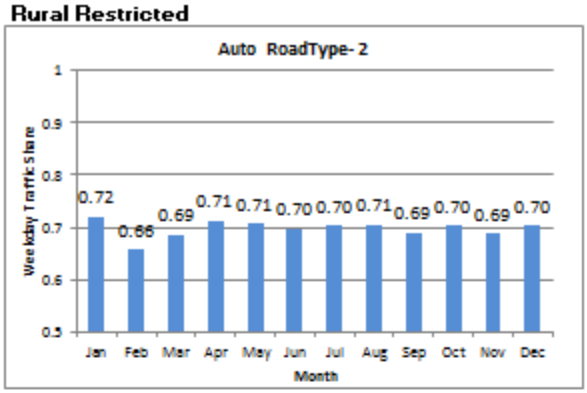
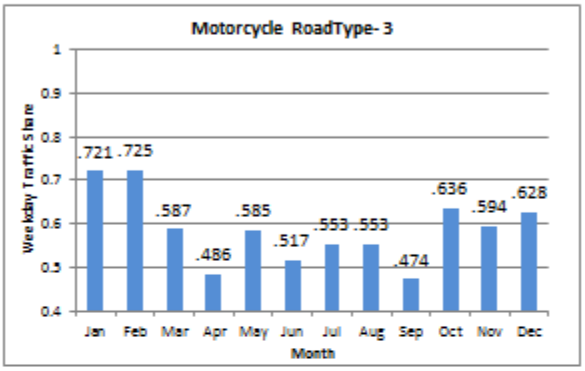


Rural Unrestricted



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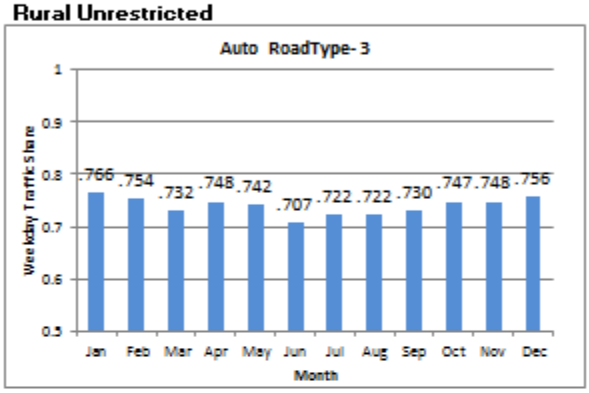
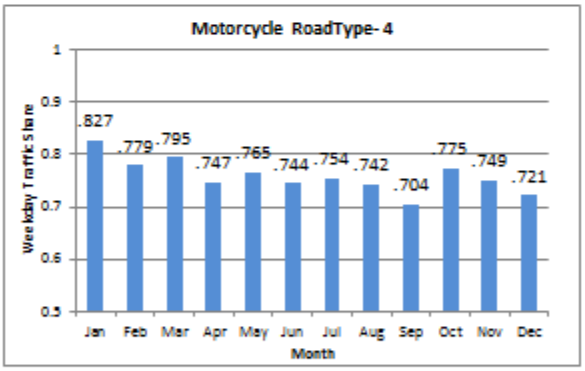
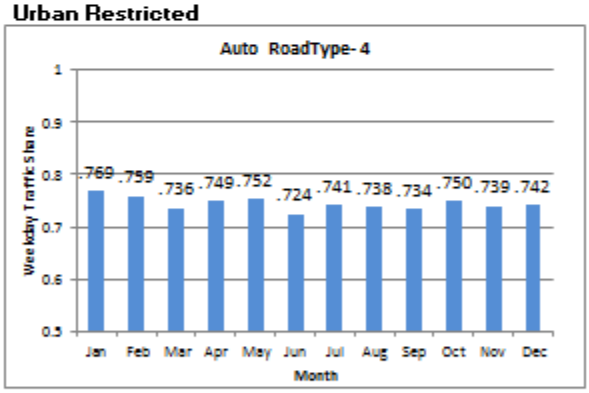


Urban Restricted



Urban Restricted



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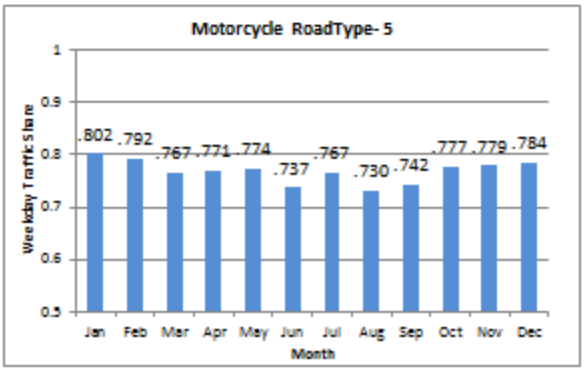

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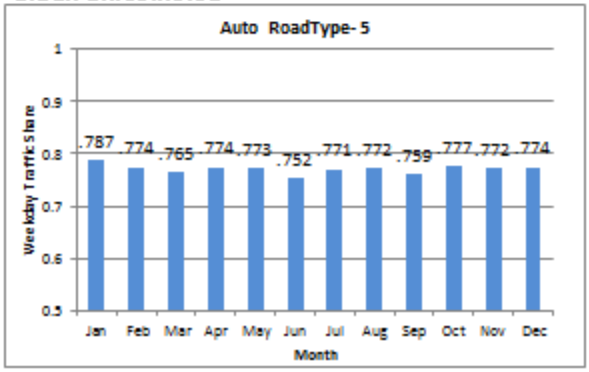
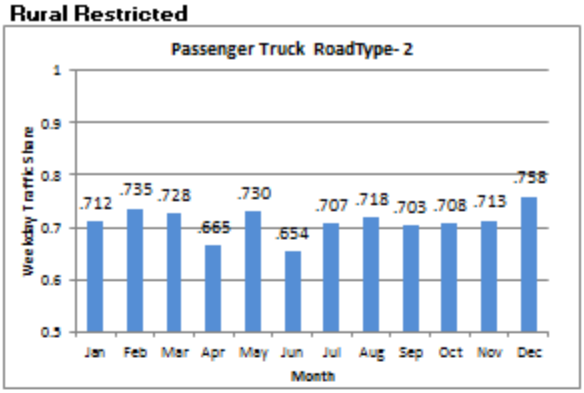


Passenger Truck and Light Commercial Truck Distributions

Rural Restricted



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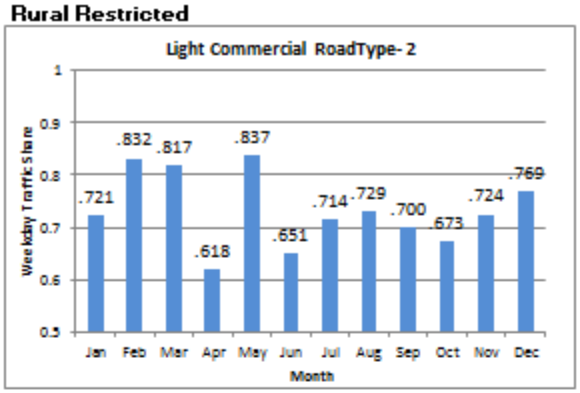

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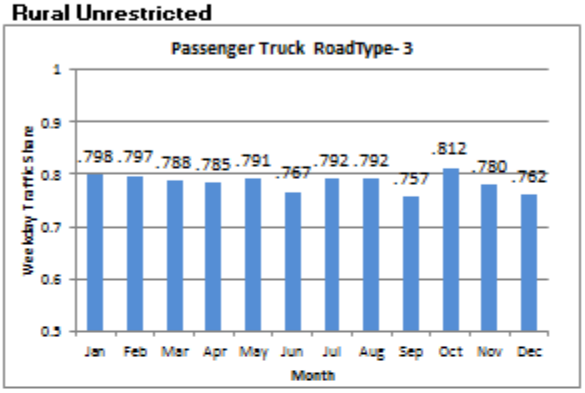

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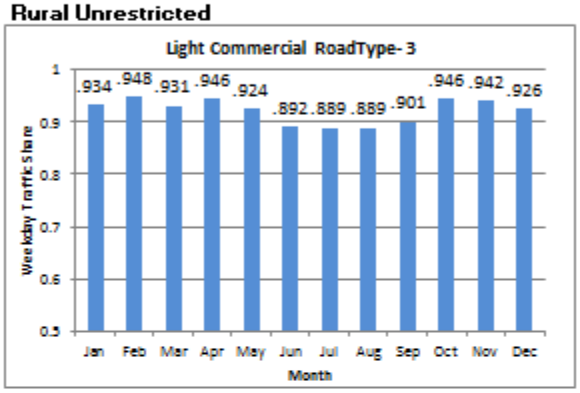

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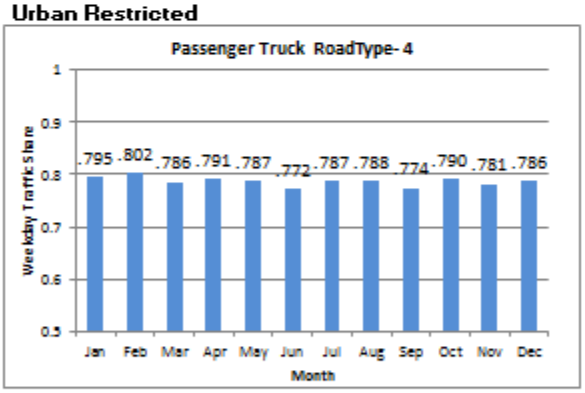

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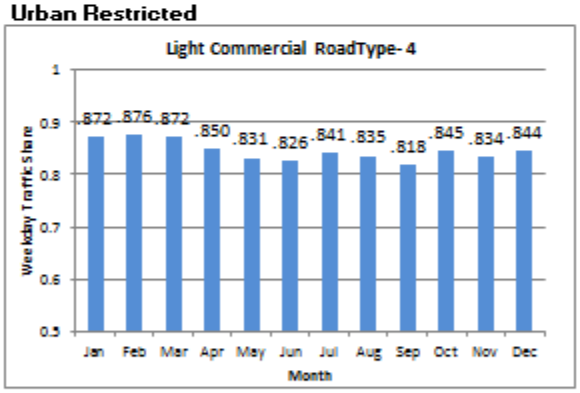

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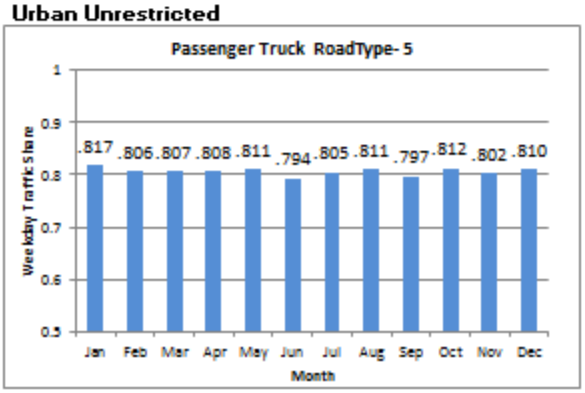

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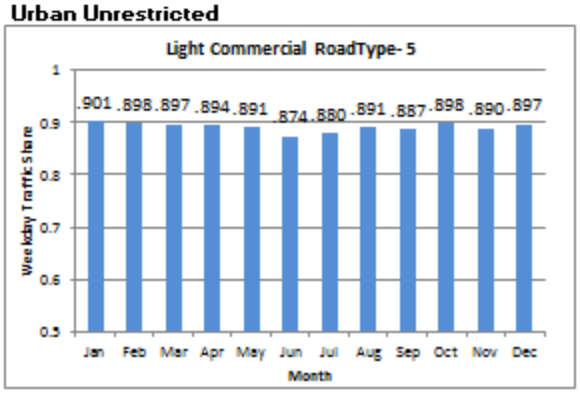
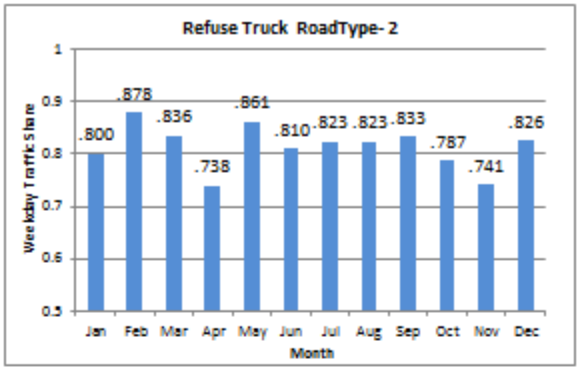


Refuse Truck and Single Unit Truck

Rural Restricted



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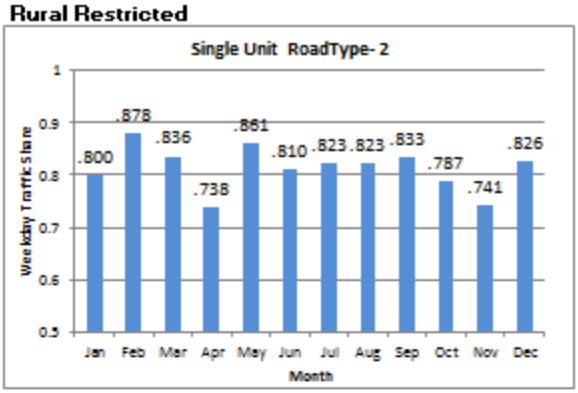

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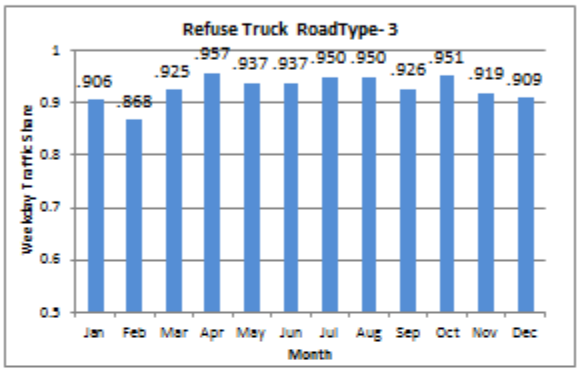

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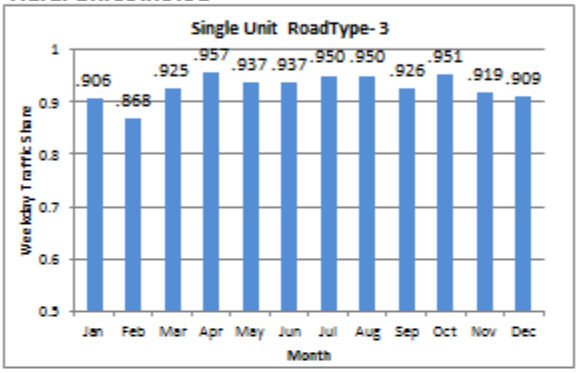

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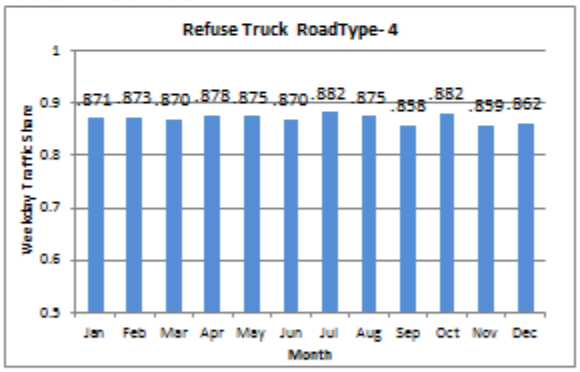

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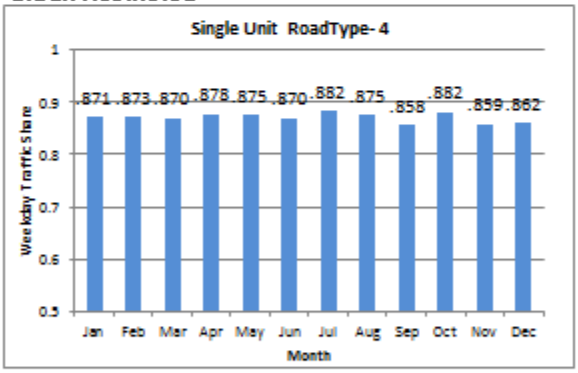

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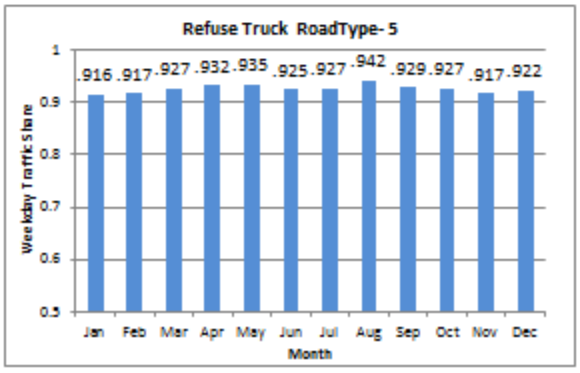

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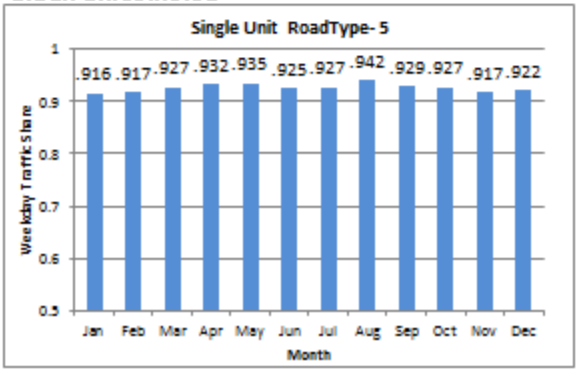
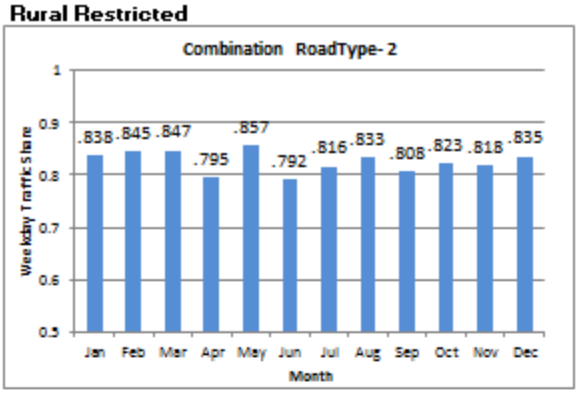


Combination Truck and Total Vehicle Summary

Rural Restricted



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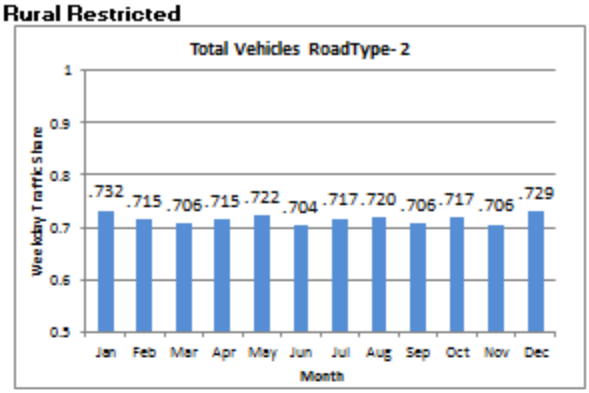

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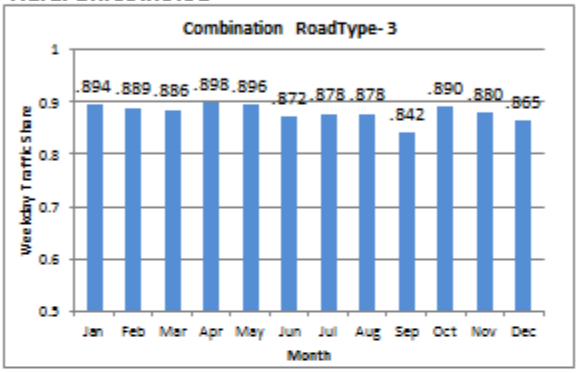

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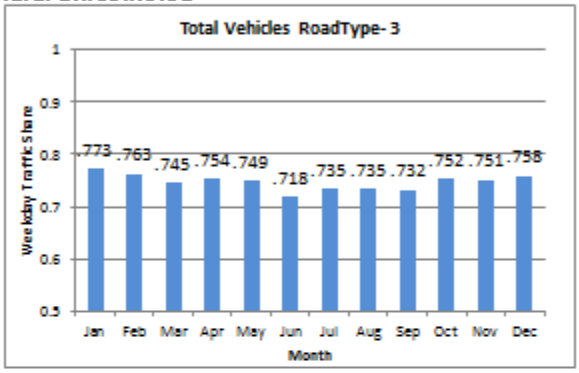

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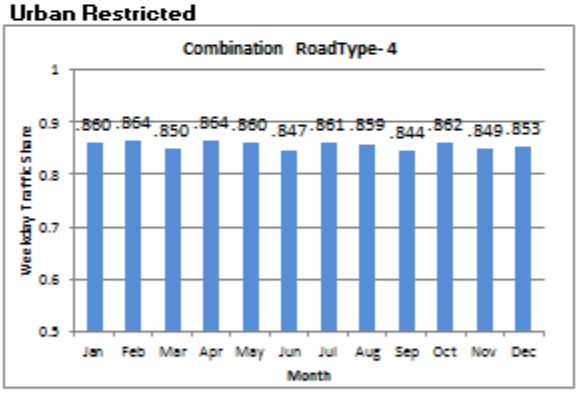

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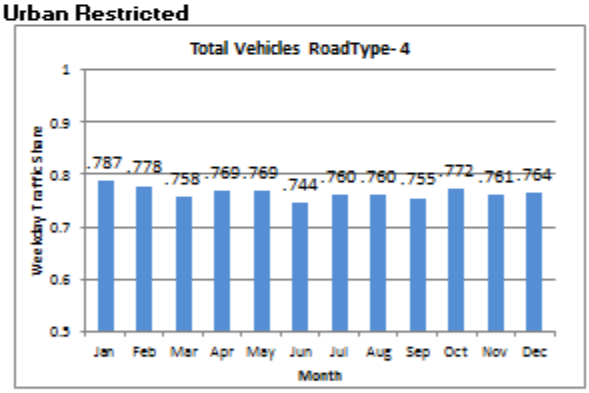

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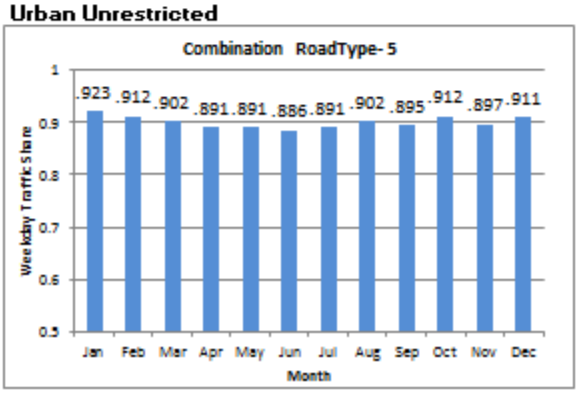

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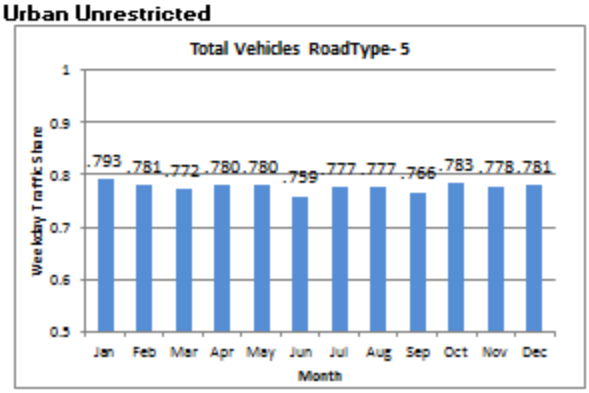


Intercity Bus, Transit Bus, School Bus, Motor Homes, and Motorcycles

Based on findings from previous work, alternative sources of information were used to generate the fractions needed for all bus types, for motor homes and for motorcycles.

Transit bus

We assumed that the amount of service provided was related the amount of ridership on the service. A 2013 CTA report provided the average weekday boardings, and average Saturday, Sunday and Holiday boardings. A similar statistic was calculated for Pace buses, for April 2015. The average weekday was multiplied by 5, and the average Saturday + Sunday was used as-is. The regional figures of (0.8284 weekday, 0.1716 weekend) for every month and facility type. This shows more service on the weekdays than weekends. An even distribution would result in the proportions 0.2857 weekend and 0.7143 weekday.

		Total Weekdays	Total Weekend
Average Week	Pace	511,361	67,471
	CTA	4,785,165	1,029,309
	Total	5,296,526	1,096,780
Shares	Pace	0.8834	0.1166
	CTA	0.8230	0.1770
	Total	0.8284	0.1716

Intercity bus

Lacking a better source of data, we assumed a distribution of weekday and weekend vehicle miles traveled proportional to the days of the week (0.2857 weekend, 0.7143 weekday), for all months and facility types.

School bus

We assumed that school bus travel was 100% weekday, 0% weekend.

Motor home

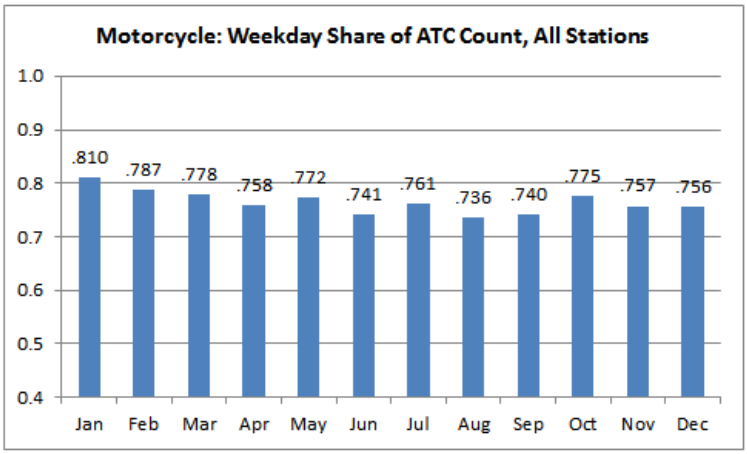
Lacking a better source of data, we assumed a distribution of weekday and weekend vehicle miles traveled proportional to the days of the week (0.2857 weekend, 0.7143 weekday), for all months and facility types.

Road Type 1

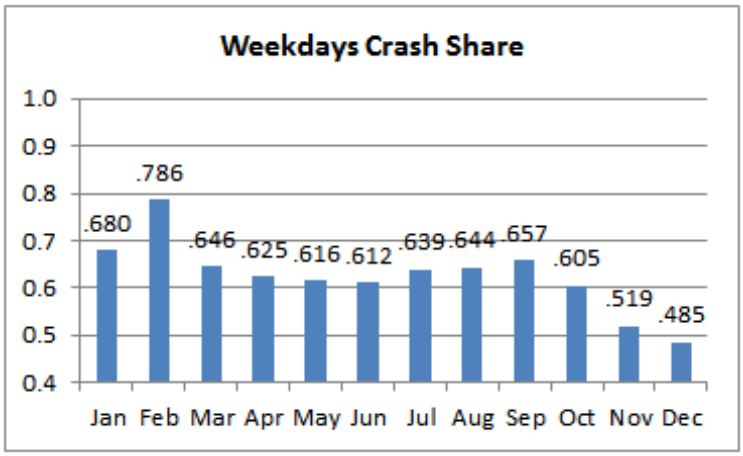
Road type 1 represents off-network travel. Since this information would be related to counts on the network, these figures were estimated based on a summary of the other four road types (urban/rural, restricted/unrestricted) combined.

Motorcycles

As discussed in another memo, we believe that the ATC system may not accurately count motorcycle vehicles. We used the motorcycle crash data for the seven counties of northeastern Illinois, all severities, as a proxy to infer the motorcycle VMT.



Motorcycle percent weekday count is fairly consistent throughout the year. We do not observe the variation of weekday traffic implied by the crash data.



The weekday crash share is much lower than the weekday ATC system count. We are postulating that the crash data more accurately represents motorcycle VMT than the ATC vehicle count. These shares were included in the MOVES input files.

The I-290 Eisenhower Expressway project study area is located within Cook County in northeast Illinois. Cook County is currently classified as a maintenance area for the 1997 (annual) $PM_{2.5}$ standard. As of December 18, 2014, the entire State of Illinois was listed as unclassified under the 2012 annual standard. This designation will be reanalyzed by USEPA as new monitoring data becomes available.

As shown in Table 1, the I-290 No Build and Preliminary Build Alternative (representing the addition of a high occupancy toll lane in which carpools with 3 or more persons are free [HOT 3+] between Mannheim Road and Austin Boulevard, and conversion of the fourth lane in each direction between Austin Boulevard and Ashland Avenue to a HOT 3+ lane) is forecasted to have between approximately 160,000 and 250,000 Average Annual Daily Traffic (AADT), which includes approximately 10,000 to 17,000 diesel trucks in 2040.

It should be noted that these AADTs have been updated for the Preliminary Build Alternative since the September 20, 2013 Chicago Metropolitan Agency for Planning (CMAP) Tier II Consultation meeting. At this Tier II Consultation meeting, I-290 traffic volumes for a worst case General Purpose Lane Alternative were presented. Since this meeting, further analysis has identified a Preliminary Build Alternative as a HOT 3+ Lane and updates to the traffic forecasts and further alternatives definition have been made.

Section 93.123(b)(1) of the conformity rule defines those projects that require a $PM_{2.5}$ or PM_{10} hot-spot analysis as "(i) New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles." As shown in Table 1, the Preliminary Build Alternative is expected to increase AADTs in the western portion of I-290 (generally between I-88 and Austin, where an additional lane is being added in each direction [including a HOT 3+ lane between Mannheim and Austin]). In the eastern portion of I-290, the Preliminary Build Alternative is expected to decrease AADTs east of Independence due to the conversion of a general purpose lane to a HOT 3+ lane in each direction between Austin and Ashland.

In terms of trucks (diesel vehicles), the Preliminary Build Alternative is expected to result in an increase of up to 3,300 trucks per day west of 1st Avenue. Between 1st Avenue and Cicero Avenue, the Preliminary Build Alternative is between 300 and 1,500 trucks per day greater than the No Build Alternative. East of Cicero Avenue, the Preliminary Build Alternative is expected to have equal or lower truck volumes than the No Build Alternative.

Based on the relatively modest changes in truck volumes on I-290 between the No Build and the Preliminary Build Alternatives, the Illinois Department of Transportation recommends that this project <u>not</u> be designated a project of air quality concern.

Table 1. Preliminary Projected 2040 Bi-Directional AADT Along I-290

Section		No Build Alternative			Preliminary Build Alternative		
From	To	Total	Trucks	% Trucks	Total	Trucks	% Trucks
I-88	Mannheim	159,600	13,800	9%	185,200	17,100	9%
Mannheim	25th	194,300	13,250	7%	248,100	16,550	7%
25th	1st	192,600	13,250	7%	230,200	16,550	7%
1st	Harlem	191,500	12,300	6%	225,700	12,600	6%
Harlem	Austin	198,600	11,800	6%	228,700	13,300	6%
Austin	Central	210,700	12,200	6%	211,100	11,100	5%
Central	Cicero	215,900	12,200	6%	222,800	11,200	5%
Cicero	Kostner	210,000	11,200	5%	212,800	11,100	5%
Kostner	Independence	228,000	11,200	5%	230,000	11,200	5%
Independence	Sacramento	232,500	11,300	5%	226,600	10,700	5%
Sacramento	Western	232,500	11,200	5%	226,600	10,600	5%
Western	Oakley	204,200	10,900	5%	203,300	10,300	5%
Oakley	Damen	216,400	11,000	5%	215,300	10,400	5%
Damen	Racine	185,700	10,800	6%	187,400	10,300	5%

Source: Parsons Brinckerhoff I-290 Travel Demand Model, 2015