

Commuter Connections TDM Evaluation FY 2018 – FY 2020 Results - Updated

**Presentation to
Commuter Connections
Subcommittee
September 15, 2020
LDA Consulting
with
ESTC, CIC Research, CUTR**





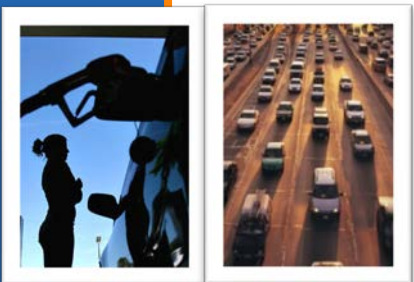
Objective of Evaluation

- Apply methodology outlined in Evaluation Framework to estimate effectiveness of 4 TDM elements:
 - Telework Assistance (MD/VA)
 - Guaranteed Ride Home
 - Employer Outreach
 - Mass Marketing
- Also document results of Commuter Operations Center (COC)
- **Changes from Interim Report**
 - Revised results to add CC activity during Jan-Jun 2020 – GRH, Employer Outreach, Mass Marketing, COC, Software Upgrades
 - Obtained data from DRPT and updated Telework!VA results
 - Updated societal benefits cost saving calculation



Overall TDM Program Impacts

<u>Indicator</u>	<u>Goal</u>	<u>Impact</u>	<u>Net</u>	<u>% VS Goal</u>
Trips reduced	146,670	138,792	(7,946)	- 5%
VMT reduced	2,715,497	2,709,721	(5,776)	- 0.2%
NOx reduced	1.1848 T	0.5404 T	(0.6444) T	- 54%
VOC reduced	0.6574 T	0.3854 T	(0.2720) T	- 41%



Missed VT goal by 5%; essentially met the VMT goal

Shortfall in emission goals due to lower emission factors for 2020 (cleaner cars)

But the 4 TDM programs collectively (excluding COC) met both the VT goal (+1%) and VMT goal (+7%)

- Coronavirus pandemic had slight impact on achievement of goals for some program elements, but likely was not a major factor



TDM Analysis Observations



Individual Program Elements

- MD TW – met both VT (+15%) and VMT (28%) goals
- TW!VA – greatly exceeded VT (+246%) and VMT (+286%) goals
- GRH – missed both VT (-17%) and VMT (-17%) goals
- Employer Outreach – slightly missed VT goal (-3%); met VMT goal
- Mass Marketing – greatly exceeded VT (+ 30%) and VMT (+53%) goals
- Commuter Operations Center – missed both VT goal (-33%) and VMT goal (-27%)

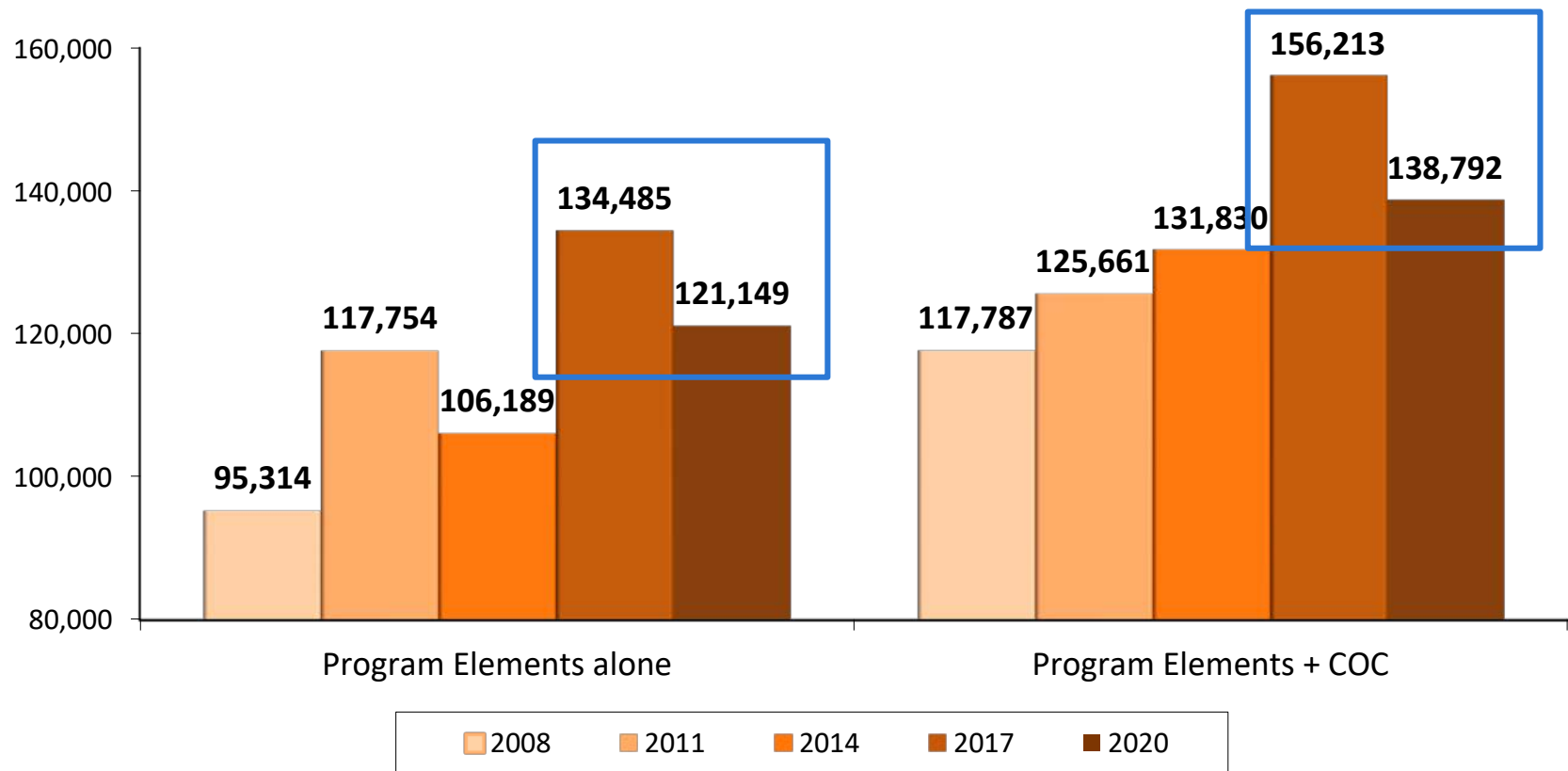
Shortfalls in individual program elements were generally related to lower than expected participation, but also to reassignment of some credits to another program element

Vehicle Trips – 2005-08, 2009-11, 2012-14, 2015-17, 2018-20

Program Elements Alone; Program Elements + Commuter Operations Center

About 10% Drop in VT Impacts from 2017 to 2020

Daily Vehicle Trips Reduced

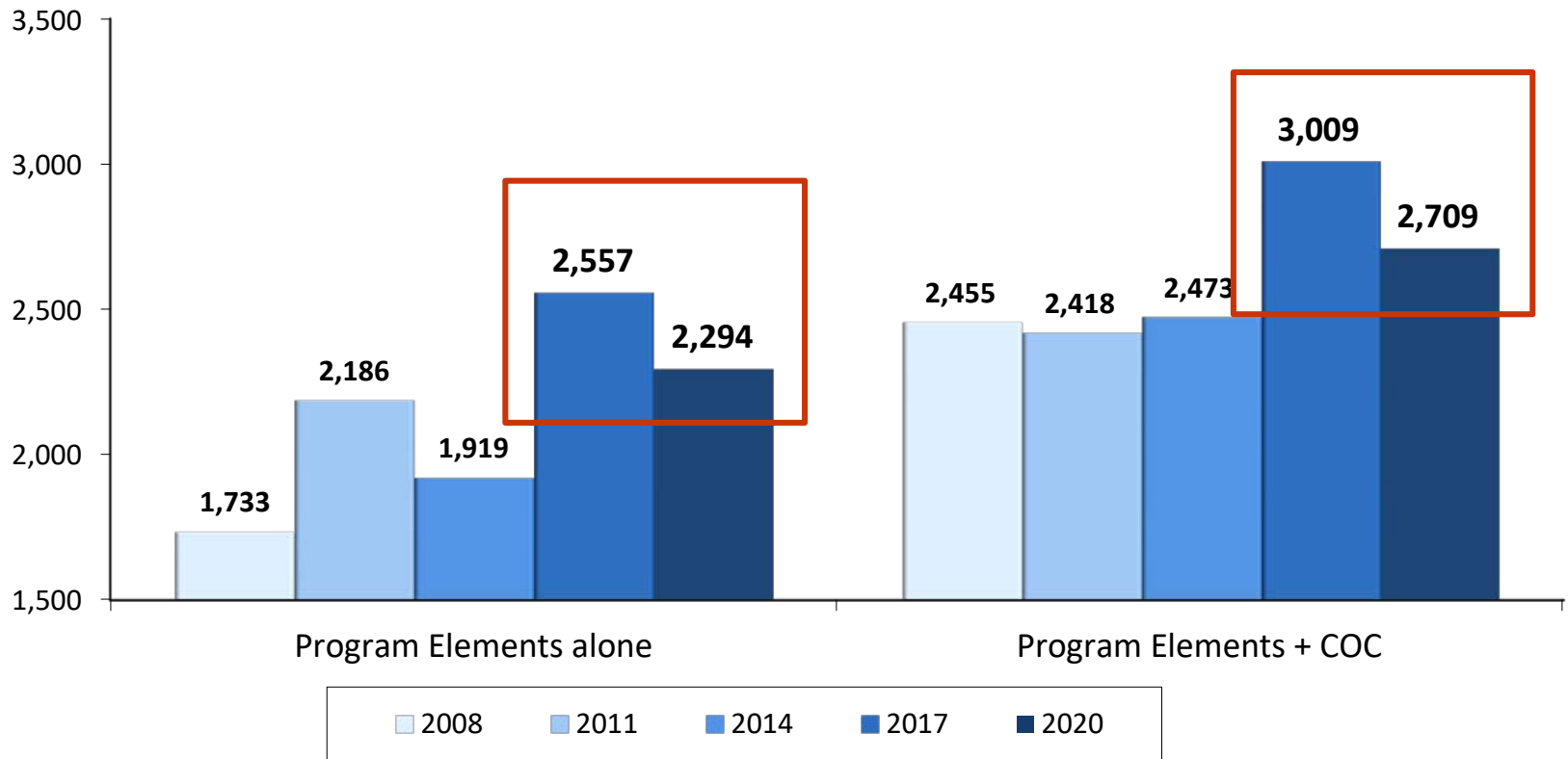


VMT – 2005-08, 2009-11, 2012-14, 2015-17, 2018-20

Program Elements Alone; Program Elements + Commuter Operations Center

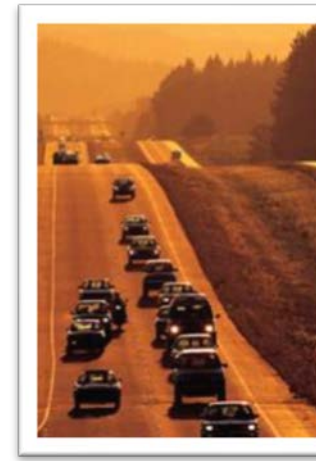
About 10% Drop in VMT Impacts from 2017 to 2020

Daily VMT Reduced (000s)



TDM Program Societal Benefits

- TDM analysis primarily undertaken to document travel and emissions impacts And measure against program goals
- TDM elements also offer societal benefits – e.g., congestion mitigation, climate change mitigation, improved health/safety
- 2020 TDM analysis estimated regional cost savings for selected societal benefits:
 - Air pollution/emissions reduction (NO_x, VOC, PM_{2.5})
 - Global climate change mitigation (reduced CO₂)
 - Reduction in congestion (reduced hours of peak period delay)
 - Reduction in fuel consumption (gasoline cost saving)
 - Improved health/safety (accidents reduced per 1M VMT)
 - Noise pollution reduction (reduced motor vehicle noise)



Societal Benefit Cost Savings = \$702,011 per Day

Generated by TDM Program Elements/COC VT/VMT Impacts

Societal Benefit	<u>Benefit Unit</u>	<u>Base Units</u>	<u>Cost per Unit</u>	<u>Daily Cost Saving</u>
– Air pollution	Tons pollutants	Varies	Varies	\$2,703
– Climate change	Tons CO2	1,057 T	\$36	\$38,058
– Noise pollution	VMT reduced	2.708 M VMT	\$0.0223	\$60,427
– Congestion	Hrs. delay reduced	5,396 hr/day	\$27.08	\$146,123
– Fuel saving	Gallons fuel saved	150,540 gal	\$2.73	\$410,974
– Health/safety*	Accidents avoided	2.741 acc.	\$15,952	\$43,726
All benefits				\$702,011

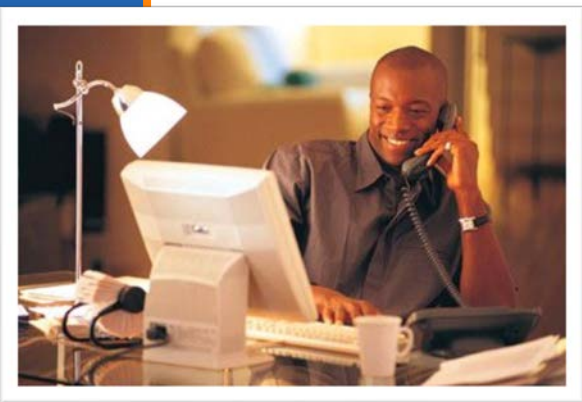
* Health/safety - Benefit unit is crashes avoided per 1M VMT;
Benefit cost per unit is a weighted average of crash occurrence by severity



Telework Assistance

Telework Assistance Impacts (MD Telework)

<u>Indicator</u>	<u>Goal</u>	<u>Impact</u>	<u>Net</u>	<u>% VS Goal</u>
Number of TWs	31,854	46,291	14,437	+ 45%
Trips reduced	11,830	13,647	1,817	+ 15%
VMT reduced	241,208	308,251	67,042	+ 28%
NOx reduced	0.122 T	0.066 T	(0.056) T	- 46%
VOC reduced	0.072 T	0.052 T	(0.020) T	- 28%



Exceeded participation, vehicle trip, and VMT goals

- TW continues to grow in the region and CC/COG continue to be source of TW information
- Impacts represent only CC contribution to regional TW (about 5% of regional TW trips reduced)
- Impacts do NOT reflect increased TW during coronavirus pandemic

Telework! VA Impacts



- TW!VA assistance to VA employers
- 15 active employers during the evaluation period; 10,000+ employees
- 19.1% of employees at TW!VA sites started/increased TW

Greatly exceeded participation, vehicle trip, and VMT goals

<u>Indicator</u>	<u>Goal</u>	<u>Impact</u>	<u>Net</u>	<u>% VS Goal</u>
Number of TWs	800	1,918	1,118	+ 140%
Trips reduced	155	537	382	+ 246%
VMT reduced	2,548	9,827	7,279	+ 286%
NOx reduced	0.003 T	0.002 T	(0.001) T	-21%
VOC reduced	0.001 T	0.002 T	0.001 T	36%



Guaranteed Ride Home

GRH Impacts – Updated to add Jan-June Activity

<u>Indicator</u>	<u>Goal</u>	<u>Impact</u>	<u>Net</u>	<u>% VS Goal</u>
Registrants	18,496	12,944	(5,552)	- 30%
Trips reduced	6,296	5,196	(1,100)	- 17%
VMT reduced	177,568	147,251	(30,317)	- 17%
NOx reduced	0.089 T	0.025 T	(0.064) T	- 72%
VOC reduced	0.048 T	0.015 T	(0.033) T	- 68%

Fell short of participation, vehicle trip, and VMT goals

- GRH has trend of declining participation – likely related to lower regional GRH awareness – 16% in 2019 vs 59% in 2004
- But GRH ads have an impact – 31% of new GRH applicants were influenced by ads to apply, so 16% of GRH impact was assigned to Mass Marketing, reducing GRH program element credit
- GRH impact includes “retained” impact from past registrants who are still using alternative modes – 27% of total GRH credit





Employer Outreach



Employer Outreach



- Three impact components
 - Overall program
 - New / expanded programs
 - Bike services

- Impacts calculated for:
 - Employers “maintained” in EO from June 2017
 - Employers with new / expanded programs since June 2017

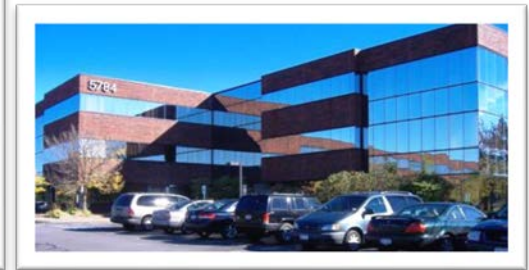
- Only employers with Level 3-4 services are included

- Employers deleted since June 2017 were removed from the impact calculation

- EO is evaluated using EPA’s COMMUTER Model v2.0 to estimate vehicle trip and VMT reductions from various packages of TDM strategies in various settings of transit accessibility.

Employer Participation – 374 New/Expanded Employers

<u>Employer Group</u>	<u>Employers</u>	<u>Employees</u>
Counted in impacts		
■ Maintained (no change)	1,590	516,372
■ Expanded since June 2017	81	21,375
■ New in 2020 analysis	<u>293</u>	<u>92,622</u>
Total in impact	1,964	630,369
■ Employers with bike program	570	299,682
Not counted in impacts		
■ Deleted since June 2017*	291	106,438



* Reflects CC effort to clean EO database; 20 large employers represented 73% of employees deleted

Employer Outreach Impacts

<u>Indicator</u>	<u>Goal</u>	<u>Impact</u>	<u>Net</u>	<u>% VS Goal</u>
Employers	2,031	1,964	(67)	- 3%
Trips reduced	90,776	87,737	(3,038)	- 3%
VMT reduced	1,533,161	1,551,219	18,058	+ 1%
NOx reduced	0.617 T	0.311 T	(0.306) T	- 50%
VOC reduced	0.385 T	0.237 T	(0.148) T	- 39%



Met VMT goal (+1%)

Slightly missed participation (-3%) and VT (-3%) goals

- 19% of total employers were either new or with expanded programs and New/Expanded programs accounted for 13% of EO VMT impacts
- Impacts do NOT reflect increased TW activity during coronavirus pandemic

Mass Marketing



Mass Marketing



Six MM components

- Direct Influence – Nearly 1% of all regional commuters changed mode after hearing CC ad; no other CC contact
 - 14% recalled CC commute messages (vs 21% in 2017)
 - 11.5% shifted to alt mode after ad (vs 3.3% in 2017)
 - 57% who shifted said ad influenced change
- “Referred” Influence – Heard ad, then contacted CC:
 - 16% of GRH impact assigned to MM
 - 12.3% of COC (rideshare app) assigned to MM
- ‘Pool Rewards CP/VP incentives
- Bike to Work Day event – event day and ongoing
- Car Free Day event – event day and ongoing
 - 11% of participants increased alt mode use for commuting after the event

‘POOL REWARDS



Mass Marketing Impacts

<u>Indicator</u>	<u>Goal</u>	<u>Impact</u>	<u>Net</u>	<u>% VS Goal</u>
Commuters asstd	23,168	38,273	15,105	+ 65%
Trips reduced	10,809	14,031	3,222	+ 30%
VMT reduced	181,932	277,511	95,579	+ 53%
NOx reduced	0.085 T	0.055 T	(0.030) T	- 35%
VOC reduced	0.025 T	0.023 T	(0.002) T	- 38%

MM greatly exceeded goals for participation (+65%) and for VT (+30%), and VMT (53%) reduced

Mode shifts from MM ads were 2x the rate of 2017 and MM received larger share of GRH than in 2017

- 71% of vehicle trip impact from “direct influence”
- 9% from “referred” influence
- 20% from ‘Pool Rewards and BTW Day and CF Day events





COC and Software Upgrades



Commuter Operations Center

Three components:

- COC “Basic Services” (July 2017-June 2020)
 - 75,651 commuters assisted by COC
 - 45% new/reapply, 55% follow-up
 - 41.6% placed into new alt modes
 - Additional 3,267 pre-FY 2018 past uses added to analysis – 16.6% were still using alt modes, so were “retained” credit
- Integrated Rideshare-Software Upgrades (enhanced info provided)
 - 43% of COC apps recalled receiving transit, P&R, TW, or bike info
 - 11% used information (e.g., called transit agency, located P&R lot, tried TW or bike)
 - 4.7% used info to change modes (IR-SU placements)
- Non-MD Telework Assistance (TWers who live and work outside MD)
 - 6.2% of non-MD TWers regionwide cited CC/COG as TW info source = 34,000 teleworkers



Commuter Operations Center (Basic + Software Upgrades)

<u>Indicator</u>	<u>Goal</u>	<u>Impact</u>	<u>Net</u>	<u>% VS Goal</u>
Commuters	91,609	75,651	(15,958)	- 17%
Trips reduced	26,804	17,643	(9,161)	- 34%
VMT reduced	579,079	415,662	(163,417)	- 28%
NOx reduced	0.269 T	0.080 T	(0.189) T	- 70%
VOC reduced	0.126 T	0.057 T	(0.069) T	- 55%



Did not meet goals – largely because the non-MD telework component was much lower than in 2017

Non-MD telework accounted for:

- 48% of COC vehicle trips reduced (vs 68% in 2017)
- 32% of COC VMT reduced (vs 53% in 2017)

- COC impact was slightly affected by coronavirus pandemic; low activity for 4 months of 2020, but only 4 months out of total 36 months in evaluation period



Questions?

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