



## MEMORANDUM

**To:** Regional Transportation Operations Coalition

**From:** CMAP Staff

**Date:** May 21, 2015

**Re:** Review of the FFY 2016-2020 CMAQ Project Applications related to Traffic Flow Improvements

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As part of the FFY 2016-2020 Congestion Mitigation and Air Quality Improvement program development process, CMAP staff is seeking feedback from the RTOC members on the traffic flow improvement projects submitted and on the project rankings developed by staff, including the air quality rankings. The feedback can include input on technical aspects of the projects, particularly whether there are any “fatal flaws,” as well as qualitative information not captured in the project rankings. Information collected from the RTOC participants will be used to refine the staff-recommended program for the Project Selection Committee to consider on June 25th.

To aid in reviewing the applications, several pieces of information are being provided.

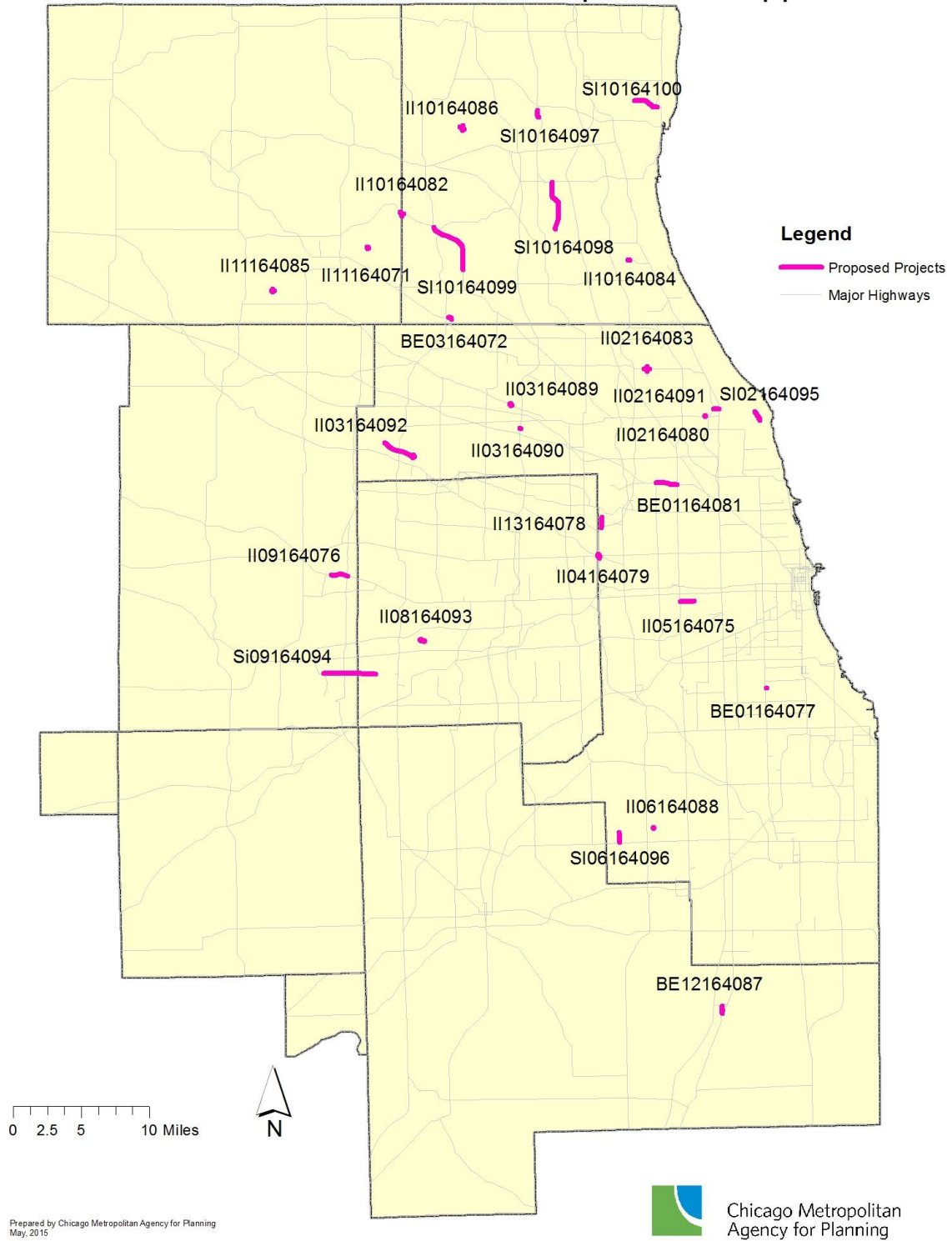
1. A description of the CMAQ project ranking methodology
2. A descriptive summary of the projects and rankings sorted by cost per kilogram of volatile organic compounds eliminated.

To view a full project application, visit the [CMAQ/TAP Program Development](#) webpage and find the applications sorted by project type and then CMAQ project ID. CMAP staff requests that RTOC members be prepared to give their feedback at the coalition’s May 28<sup>th</sup> meeting. Feedback can also be given to staff in writing by sending an email to Doug Ferguson, [dferguson@cmap.illinois.gov](mailto:dferguson@cmap.illinois.gov).

### Overview of FFY 16-20 Highway Projects

For this CMAQ cycle, 118 applications were received. Of these, 31 are highway-focused (four bottleneck eliminations, 19 intersection improvements, seven signal interconnect projects, and an implementation of ramp metering), coming to approximately \$175 million. The locations of the projects can be seen in the map in Figure 1.

**Figure 1. Locations of FFY 16-20 CMAQ highway projects**



## CMAQ Project Ranking Process

The primary consideration for CMAQ projects is the cost-effectiveness of their air emissions reductions. Additional criteria are also taken into consideration when evaluating projects for potential funding. These are referred to as Transportation Impact Criteria and are scored on a

30-point scale by project type category. The Transportation Impact Criteria and their weights are as follows:

<b>Project type</b>	<b>Transportation Impact Criteria and Weights</b>		
Highway	Reliability 15	Safety 5	On CMP network 10
Transit	Ridership 15	Reliability (transit service) or asset condition (transit facilities) 15	
Bicycle	Safety & attractiveness 10	Transit accessibility 10	Facility connectivity 10
Direct Emissions Reduction	Benefits sensitive population 20	Annual health benefits 5	Improves public fleets 5

Projects are given additional consideration equal to another 10 points if they meet certain Regional Priorities:

1. Project is a component of a GO TO 2040 major capital project.
2. Project is for parking management, including parking pricing.
3. The zoning and urban design requirements in the area around a proposed transit project are supportive of transit.

### ***Air Quality Cost-Effectiveness***

The cost-effectiveness of emissions reductions for intersection improvements is based on the speed change associated with the project, with higher speeds associated with lower emissions rates per mile traveled. Speed change for the intersection improvement projects was estimated either by CMAP staff or the sponsor using microsimulation software, except for two projects (the Cook County Department of Transportation and Highways projects) in which the sponsor estimated the change in emissions from the reduction in VMT and the speeds associated with that VMT. The cost-effectiveness of bottleneck eliminations is based on the sponsor’s estimate of delay reduced by the project, verified by CMAP staff, with the exception that CMAP staff computed the benefits of the Village of Monee project by microsimulation. Emissions reductions are computed using future emissions rates as a function of speed estimated from the Motor Vehicle Emission Simulator (MOVES) software.

All cost-effectiveness values are annualized by multiplying by the capital recovery factor assuming a 3% discount rate. An air quality cost-effectiveness score is generated by taking 60 as the maximum (90 for projects classified as “other”) and scaling the project scores so that a middle score of 30 corresponds to the median cost-effectiveness of the projects submitted.

**Travel Time Reliability**

A project’s ability to address travel time reliability is evaluated with a quantitative and a qualitative component. The quantitative portion is based on the planning time index (95<sup>th</sup> percentile travel time divided by free flow travel time) and has a maximum of **10 points**. The score is calculated based on the percentile shown in the middle column in the table below. Points are assigned for each project as follows:

Maximum Approach PTI*	Percentile	Score
<= 1.40	0 - 50 <sup>th</sup>	2
1.41 to 1.81	51 <sup>st</sup> to 75 <sup>th</sup>	4
1.82 to 2.55	76 <sup>th</sup> to 90 <sup>th</sup>	6
2.56 to 3.35	91 <sup>st</sup> to 95 <sup>th</sup>	8
3.36 and greater	>95 <sup>th</sup>	10

\* Maximum corridor PTI for signal interconnects and for bottleneck eliminations; maximum intersection leg PTI for intersection improvements.

The qualitative dimension of the score has a maximum of **5 points** and is developed by determining whether the project has any of the following characteristics or helps implement any of the following as part of a larger program:

<i>Systematic Improvements</i>	Score
Integrated Corridor Management	5
Work zone management (traveler information improvements)	5
Truck travel information systems	4
Strategies to improve transit on-time performance	4
Ramp metering	4
Road weather management systems	2
Special event management	3
Traffic signal interconnect	4
Adaptive signal control	5
<i>Spot improvements:</i>	
Highway-rail grade separation with more than 10K AADT and more than 10K annual minutes of delay lasting > 10 minutes	5
Implementation of effective crash reduction strategy as part of highway improvement	3
Highway-rail grade separation in ICC top 20 delay list	3
Highway-rail grade separation with more than 5K AADT and >5K annual minutes of delays lasting > 10 minutes	2
Implementation of an access management strategy	2
Other highway-rail grade separation	1
<i>Incident Detection:</i>	
Traffic Management Center (TMC) to TMC Communications	4
Computer-aided dispatch (911 call center) to (TMC) communications	4

Extension or improvement of real-time traffic surveillance on regional expressways and tollways, including video and detectors	3
Integration of real-time probe data into incident detection procedures	3
Establishment of detector health program	3
<i>Incident Response:</i>	
Expansion of response operations capabilities (e.g., minutemen)	5
Dispatch improvements, including center-to-operator and supervisor-to-operator communications (including supervisor-bus communications)	4
Response equipment (e.g., minuteman vehicles)	4
<i>Incident Recovery:</i>	
Expediting coroner's/medical examiner's accident investigation process	5
Dynamic message signs (DMS, multiple, including arterial DMS)	3
Incident-responsive ramp meters	3
Speed Management Systems	2
On-scene communication, coordination, and cooperation	2
Development and improvement of highway closure detour routes	2

## **Safety**

Safety is a consideration for all highway projects, so if a project addresses a location with significant safety problems, it should be treated as a higher funding priority, other things being equal. Higher crash rates also are associated with nonrecurring congestion. Thus, a proposal receives **5** points if the project addresses an IDOT 5 percent report location (local or state system) and **0** if it does not.

## **Congestion Management Process Highway System**

The regional [Congestion Management Process \(CMP\)](#) has identified a set of roadways on which it is particularly critical to minimize congestion. The score is **10** if the project is on the CMP network and **0** if not.

## Project Rankings and Analysis – Traffic Flow Improvements

CMAQ ID	Project	Project Summary	Project Total Cost	CMAQ Requested Funds	Air Quality		Transportation Impact Criteria					Regional Priority <sup>1</sup>	Composite Priority Index <sup>2</sup>
					Annualized \$ per Kg VOC Eliminated	AQ Cost Effectiveness Score	PTI	Quantitative Reliability Features	Travel Time Reliability Score	CMP Score	Safety Score		
BE01164081	IDOT - I-90 from Cumberland Av to Harlem Av (EB Improvement)	This proposed project will extend an auxiliary lane on eastbound I-90 (Kennedy Expressway) from its current terminus at the IL 171 Cumberland Ave northbound exit to the IL 43 Harlem Ave exit ramp. The intent is to reduce the bottleneck that exists at the convergence of I-90 (three lanes) and I-190 (two lanes) where two successive lane drops reduce eastbound through capacity to three lanes. The auxiliary lane will channel exiting traffic to IL 43 Harlem Ave, a high-volume exit ramp. The project includes numerous ITS improvements, including fiber optic cables, traffic detectors, a pan-tilt-zoom camera, a dynamic message sign, new ramp meters, and traffic surveillance fully integrated into the regional ITS system. This project is part of a GO TO 2040 major capital project.	\$15,900,000	\$9,100,000	\$209	58.3	4.3	Transit On-Time (4); Dynamic Message Signs (3)	15	10	0	10	93.3
OT13164103	IDOT - Ramp metering	This project expands the IDOT metered expressway ramps to include the I-55 corridor, and upgrades existing installations along I-94 (Dan Ryan Expy) for compatibility with the Advanced Traffic Management System (ATMS) controller.	\$3,872,000	\$3,097,600	\$224	87.3	N/A	N/A	N/A	N/A	N/A	0	87.3
SI10164098	Lake County - Butterfield Rd from Allanson Rd to Buckley Rd/Peterson Rd	This project will deploy Adaptive Signal Control Technologies (ASCT) at eight traffic signals along Butterfield Rd from Allanson Rd to Buckley Rd/Peterson Rd. The project also includes various modifications to the existing signal installation, to the existing communication infrastructure as well as the addition of ITS subsystems such as travel time detectors and traffic monitoring cameras.	\$1,019,610	\$739,690	\$537	55.8	2.8	Adaptive Signal Interconnect (5)	13	0	5	0	73.8
SI10164097	IDOT - US45/Lake St from Rollins Rd to Dada Dr/Grant Av	Interconnect the signals at US 45(Lake St) and Rollins Rd and US 42 (Lake St) and Dada Dr/Grant Ave with the existing interconnect north on US 45 and east on IL 132 (Grand Ave).	\$123,000	\$85,600	\$594	55.4	2.3	Signal interconnect (4)	10	10	0	0	75.4
SI06164096	IDOT - Wolf Rd from 153rd St to 159th St	The project interconnects the signals at Wolf Rd and 153rd St and US 6/159th St and Wolf Rd with the existing interconnect along Wolf Rd.	\$159,000	\$111,200	\$731	54.4	2.7	Signal interconnect (4)	12	0	0	0	66.4
SI09164094	Aurora - Indian Trail Rd from IL25/Aurora Av to Pensbury Ln	The project consists of adding seven signalized intersections along Indian Trail to the existing fiber-optic interconnect system that extends from Church Rd to Farnsworth Ave. The existing system will be extended west to Aurora Ave (IL 25) and east to Pensbury Ln. The project will be tied into the City's Centralized Transportation Management System (CTMS), completing an overall 6.34 mile interconnect encompassing 16 signals. Interconnect the signals at US 45(Lake St) and Rollins Rd and US 42 (Lake St) and Dada Dr/Grant Ave with the existing interconnect north on US 45 and east on IL 132 (Grand Ave).	\$1,140,009	\$905,607	\$885	53.3	4.2	Signal interconnect (4)	14	0	5	0	72.3
SI10164099	Lake County - US 12/Rand Rd from IL 176/Liberty St to Miller Rd	This project will interconnect an existing four signal system located on IL 176 between Larkdale Row and the IL 176 northbound ramps at US 12 (Rand Rd) and other existing signals located along US 12 (Rand Rd) to the existing Lake County Passage network at US 12 (Rand Rd) at Miller Rd. In addition, the traffic signals at the IL 176 ramps will be modernized. The improvements will also include the installation throughout the project limits of ITS sub systems including traffic monitoring cameras and travel time detectors.	\$2,402,430	\$1,836,960	\$1,283	50.5	1.8	Sig Interconn (4); Integrated corridor mgmt (5);	11	10	5	0	76.5
II02164080	IDOT - Golf Rd at Harms Rd	This project provides for the addition of southbound and westbound 300' right turn lanes and the modernization of traffic signals.	\$948,750	\$660,000	\$1,348	50.0	3.8	Reviewed; None Found	10	0	0	0	60.0
II02164083	IDOT - Willow Rd at Pflingsten Rd	This proposed project provides for the addition of eastbound and westbound 300' right turn lanes.	\$1,405,575	\$1,004,400	\$2,492	42.9	3.0	Reviewed; None Found	8	10	0	0	60.9
II10164086	Lake County DOT - Fairfield Rd at IL 134	The overall improvement will involve the widening and reconstruction of Fairfield Rd and IL 134 to 5-lane cross sections. The CMAQ-funded portion of the project adds an eastbound right turn lane, channelization and a 10-foot wide shared-use path along IL 134.	\$984,000	\$699,000	\$2,549	42.6	1.9	Reviewed; none found.	6	0	0	0	48.6
II10164082	IDOT - IL 176 at Roberts Rd	This project adds a 500-foot eastbound right-hand turn lane.	\$1,221,250	\$860,000	\$2,895	40.6	1.7	Reviewed; none found.	4	10	5	0	59.6

1 - A component of a GO TO 2040 Major Capital Project.

2 - Calculated by adding the scores for the Cost Effectiveness, Transportation Impact Criteria and the Regional Priority.

N/A = Not Analyzed

N/D = No Data



CMAQ ID	Project	Project Summary	Project Total Cost	CMAQ Requested Funds	Air Quality		Transportation Impact Criteria					Regional Priority <sup>1</sup>	Composite Priority Index <sup>2</sup>
					Annualized \$ per Kg VOC Eliminated	AQ Cost Effectiveness Score	PTI	Quantitative Reliability Features	Travel Time Reliability Score	CMP Score	Safety Score		
SI10164100	Lake County - Sunset Av/Golf Rd/Greenwood Av from McAree Rd to IL 137/Sheridan Rd	This project will interconnect a single segment of county highway composed of Sunset Ave, Golf Rd and Greenwood Ave from Lewis Ave to IL 137 (Sheridan Rd) to extend communications from the existing Lake County PASSAGE network along Sunset Ave, Golf Rd and Greenwood Ave from IL 131 (Greenbay Rd) to IL 137 (Sheridan Rd). The improvements will also include the installation throughout the project limits of other ITS sub systems including traffic monitoring cameras and travel time detectors.	\$2,115,400	\$1,508,320	\$3,818	35.9	5.4	Sig Interconn (4); Integrated corridor mgmt (5);	15	10	5	0	65.9
II05164075	Berwyn - 16st St from Harlem Av to Ridgeland Av	This project includes interconnecting traffic signals along 16th St from Wenonah Ave to Ridgeland Ave. The all-way stop controlled intersections at Wesley Av and Gunderson Av would be improved by installing lighted crosswalk treatments. The traffic signal at Wenonah Av would be modernized, and countdown pedestrian signals would be installed on all remaining signal heads. 16th St would also undergo bicycle improvements in the form of pavement markings.	\$1,653,020	\$59,600	\$4,630	32.2	2.0	Signal Interconnect (4); included in line items	10	0	5	0	47.2
II03164089	Schaumburg - Woodfield Rd at IL 53	This proposed project will provide for dual left and dual right turn lanes from the southbound West Frontage Rd at Woodfield Rd, immediately south of the I-290 southbound exit to the West Frontage Rd.	\$3,434,000	\$2,106,000	\$4,706	31.8	2.9	Sig interconnect in larger project; not this one.	8	0	0	0	39.8
BE01164077	CDOT - 71st St and CSX Grade Separation (GS19)	This proposed GO TO 2040 CREATE project is a highway-rail grade separation of 71 <sup>st</sup> St across the CSX Railroad east of Western Ave in Chicago. The project is associated with CREATE Project P3, a rail-to-rail separation of the CSX Railroad over the Metra Southwest Service. P3 will raise the grade of the CSX Railroad at 71 <sup>st</sup> St, but not sufficiently to clear the highway. This CMAQ project will depress 71 <sup>st</sup> St sufficiently to clear the highway under the new rail structure.	\$17,260,000	\$13,808,000	\$5,589	28.3	2.7	Preliminary - Check Excess Delay; RR Grade Sep (1)	9	0	0	10	47.3
II03164090	Schaumburg - IL 62/Algonquin Rd at Meacham Rd	This proposed project will provide for intersection improvements at IL 62/Algonquin Rd at Meacham Rd. The east approach will be improved with longer left turn lanes and the west approach will be improved with an additional right turn lane. The south approach will be improved with an additional right turn lane. The north approach will be improved with longer left turn lanes. The project includes bike-ped improvements and traffic signal modernization.	\$4,095,000	\$2,680,000	\$6,234	25.9	2.0	No line item for signal interconnect	6	10	0	0	41.9
SI02164095	Evanston - Green Bay Rd Corridor Improvements	Interconnect the signals along Green Bay Rd from McCormick Blvd to Ridge Ave. The interconnect will also include the signals at Emerson St and Ridge Ave and Emerson St and Asbury Ave.	\$2,850,000	\$1,920,000	\$7,566	21.7	1.8	Signal interconnect (4)	10	0	5	0	36.7
II04164079	Cook County DOT - I-294 at IL 64/North Av	Improvements include construction of a new southbound exit ramp from I-294 to County Line Rd, realignment of County Line Rd at the intersection with the exit ramp for traffic to travel both northbound and southbound on County Line Rd, and reconfiguration of the IL 64 and US 20 intersections with County Line Rd providing access for southbound I-294 exiting traffic. This project is part of a GO TO 2040 major capital project.	\$39,691,908	\$29,469,874	\$8,053	20.3	7.1	Work Zone (5). Includes line items for MOT and ITS	15	10	5	10	60.3
II09164076	Geneva - IL 38/E State St from IL 25/Bennett St to Kirk Rd	The overall project involves widening and reconstruction of East State St (IL-38) from Kirk Rd to the Fox River, with the CMAQ-funded portion to add auxiliary turn lanes at signalized intersections and a center bidirectional turn lane along 1.6 miles roadway. Signals in the corridor will also be interconnected. Two new shelter pads for Pace service will be added as part of the project.	\$5,560,262	\$4,083,068	\$9,862	15.9	2.1	Sig int Con (4); Access management (2) (TWLTL);	11	10	0	0	36.9
II02164091	Skokie - Old Orchard Rd from Edens Ewy to Skokie Blv	The proposed project provides improvements on Old Orchard Rd and the southbound and northbound ramps for the I-94 Edens Expressway interchange with Old Orchard. Including channelization, intersection improvements, traffic signal modernization, and a shared-use path along Old Orchard Rd. The project will also replace the two-lane northbound I-94 exit ramp onto Old Orchard with a two-lane turning road and a dual left turn lane.	\$11,882,500	\$7,162,000	\$11,432	12.9	6.0	Reviewed; None Found	10	0	0	0	22.9

1 - A component of a GO TO 2040 Major Capital Project.

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II13164078	Cook County DOTD - I-294 Ramps to Franklin Av/Green St	Construction of two new ramps between I-294 and Franklin Ave/Green St. The ramps will be adjoining the Western Access highway and will provide an exit for northbound I-294 traffic at Franklin Ave/Green St and provide access to southbound I-294 from Franklin Ave/Green St. This project is part of a GO TO 2040 major capital project.	\$56,086,251	\$40,768,334	\$14,594	8.4	1.6	Work Zone (5); MOT line item	9	10	0	10	37.4
II11164085	Lake in the Hills - Lakewood Rd at Miller Rd	This project converts an all-way stop controlled intersection to a signalized intersection and adds right-hand turn lanes on all four legs.	\$2,130,000	\$80,000	\$17,456	5.7	N/D	Reviewed; none found.	0	0	0	0	5.7
II10164084	Lake Forest - IL43/Waukegan Rd at Everett Rd	This project adds a southbound right-turn lane on Waukegan Rd (IL 43) and extends the existing eastbound right-turn lane on Everett Rd. The rail crossing at the CP line would be widened and made safer by the addition of a barrier median supporting additional crossing gates, requiring relocation of the grade crossing signals and switching equipment.	\$2,423,500	\$1,903,200	\$27,477	1.5	1.4	Implementation of crash reduction strategies (3);	7	10	0	0	18.5
II11164071	Algonquin Township - Crystal Lake Rd and Silver Lake Roundabout	This project converts an all-way stop controlled intersection to a single lane free-flowing modern roundabout.	\$2,500,000	\$2,000,000	\$38,309	0.3	N/D	Reviewed; none found.	0	0	0	0	0.3
II03164092	Streamwood - IL19/Irving Park Rd from Schaumburg Rd to Bartlett Rd	The overall project involves widening and reconstructing IL 19, but the CMAQ-funded portion would be intersection improvements at IL 19 at Bartlett Rd to include lengthened left turn bays and dedicated right turn lanes on all four legs, along with signal modernization including pedestrian signals. Sidewalk will be added north of Irving Park Rd and both east and west of Bartlett Rd.	\$11,344,500	\$2,524,800	\$43,845	0.2	3.2	Reviewed; None Found	8	0	0	0	8.2
II08164093	Warrenville - Old Town Roundabout (Batavia Rd/Warrenville Rd/River Rd)	The project will remove an offset intersection at Batavia Rd/Warrenville Rd/River Rd that is currently stop-controlled and replace it with a roundabout. It will also include new sidewalks.	\$4,017,180	\$2,521,888	\$51,443	0.1	N/D	Reviewed; none found.	0	0	0	0	0.1
BE03164072	Barrington - US14 Grade Separation at CN/WCL Railway	This proposed project is a highway-rail grade separation of US 14 across the Canadian National Railway (formerly the Elgin Joliet and Eastern) between Lake Cook Rd and IL 59 in Barrington. The project consists of a US 14 underpass. Several local-road access points to US 14 are also closed as part of the project. Associated projects include (1) the realignment of Lake Zurich Rd and (2) a shared-use path along US 14 (a separate FY 2016-20 CMAQ request). US 14 is a primary route for emergency services in Barrington. The purchase of the EJ&E by the Canadian National Railway has increased train volumes on this rail line.	\$62,668,750	\$39,687,000	\$66,356	0.0	2.0	RR Grade Sep (1); excess delay: 1124 annual	7	10	0	0	17.0
BE12164087	Monee - Egyptian Trail from Monee-Manhattan Rd to Governors Hwy	This proposed project will reconstruct Egyptian Trail in Monee, a two-lane collector rural cross-section with aggregate shoulders and open ditches, to an urban cross-section. The project includes a two-way bi-directional left turn lane; intersection improvements, including a roundabout at Court St, and a realigned intersection with IL 50 with right-in-right-out restrictions. The project will also include public right-of-way accessibility and bikeway improvements.	\$4,348,700	\$1,420,000	\$74,402	0.0	N/D	Access Management (2); TWLTL	2	0	5	0	7.0
II06164073	Bedford Park - 71st St at Sayre Av	The Project did not meet the screening criteria for project readiness and was not evaluated.	\$131,000	\$96,000	-	-	-	-	-	-	-	-	-
II06164074	Bedford Park - Harlem Av at 71st St	The Project did not meet the screening criteria for project readiness and was not evaluated.	\$368,000	\$256,000	-	-	-	-	-	-	-	-	-
II06164088	Orland Park - 151st St and Regent Dr	Traffic flow will be improved at this intersection by adding NB and SB left turn phases with a protected signal phase for left-turning vehicles. This project will include high visibility striping and signage, additional traffic signal equipment, and pedestrian signals.	\$239,000	\$169,600	No Benefit	0.0	N/D	Reviewed; none found.	0	0	0	0	0.0

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