ON TO 2050 Update Regionally Significant Projects Benefits Report

Draft presented to Transportation Committee for review on April 29, 2022.

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Introduction

As northeastern Illinois's Metropolitan Planning Organization (MPO), the Chicago Metropolitan Agency for Planning (CMAP) is required by federal law to quadrennially develop a list of major transportation projects to be implemented in the region between now and 2050 (the horizon year of the current long-range transportation plan). These projects are capital investments in the region's expressways, arterials, and transit system with impacts and benefits that are large enough to warrant additional discussion through the regional planning process. This group of Regionally Significant Projects (RSPs) must also be fiscally constrained, meaning that sufficient future revenues must be reasonably available to implement them. This document describes the RSPs and the process CMAP employed to identify and evaluate them. Note that the selection of the final list of RSPs to be included in the ON TO 2050 Update is not part of this document.

RSPs support ON TO 2050' s principles of inclusive growth, prioritized investment, and resilience, particularly emphasizing the need to use the region's limited resources to invest in existing infrastructure to modernize and improve condition to achieve a state of good repair. Projects are prioritized into two categories:" constrained" and "unconstrained." Only constrained projects are eligible to receive federal transportation funds and obtain certain federal approvals. These constrained projects can help the region meet today's needs, adapt to changing mobility patterns for goods and people, and support economic success overall. Projects that are categorized as "unconstrained" require further action such as additional study and/or cannot be completed within the limits of the region's forecasted revenues. Because the region has limited funds available for expansions or improvements, the RSP evaluation process is intended to generate a list of prioritized projects that help the region meet its goals.

More than 70 RSPs have been identified, totaling more than $84 billion in year of expenditure dollars. CMAP staff estimates $485 billion in core revenues will be available over the planning horizon 2023-2050. After adding reasonably expected revenues, the region is forecasted to have approximately $520 billion in revenues verses a need of $429 billion just to maintain and operate in current condition. Remaining revenue would be split between reaching a state of good repair, enhancing, and expanding the transportation system. However, the expenditures needed to achieve a state of good repair have tripled since ON TO 2050 due to declines in the system’s overall condition. This highly constrained environment generates the need for strong understanding and evaluation of the tradeoffs between projects, policies, and revenue recommendations.

Northeastern Illinois does not currently meet national ambient air quality standards for ozone. In order to be included in the plan, RSPs are also evaluated for their conformity to air quality standards. A future transportation system that includes the RSPs must demonstrate that it does not produce pollutants exceeding a pre-set standard (known as the motor vehicle emissions budget), which is established to help the region meet national air quality standards and is one part of an overall air pollution reduction strategy. When these conditions are met, the plan is considered to be in air quality conformity. While this document reports changes in air pollution emissions associated with each project individually, the official conformity analysis will

ultimately be based on all the projects fiscally constrained in the plan (and Transportation Improvement Program) as a whole.

Process

Because it is not practical to itemize all projects expected over a multi-decade planning horizon, MPOs typically list only projects of a certain size or type. The update to ON TO 2050 maintains the same definition of Regionally Significant Projects:

1. Project costs at least $100 million and (a) changes capacity on the National Highway System (NHS) or is a new expressway or principal arterial, or (b) changes capacity on transit services with some separate rights-of-way or shared right-of-way where transit has priority over other traffic; or
2. Project costs at least $250 million, regardless of the facility type or work type.

Candidate projects are compared to the cost thresholds based on current dollars (any conversion to year-of-expenditure, or YOE, cost is carried out by CMAP when necessary to meet federal rules). The entire project cost, not just the cost of the added capacity, is used to determine whether the project is regionally significant.

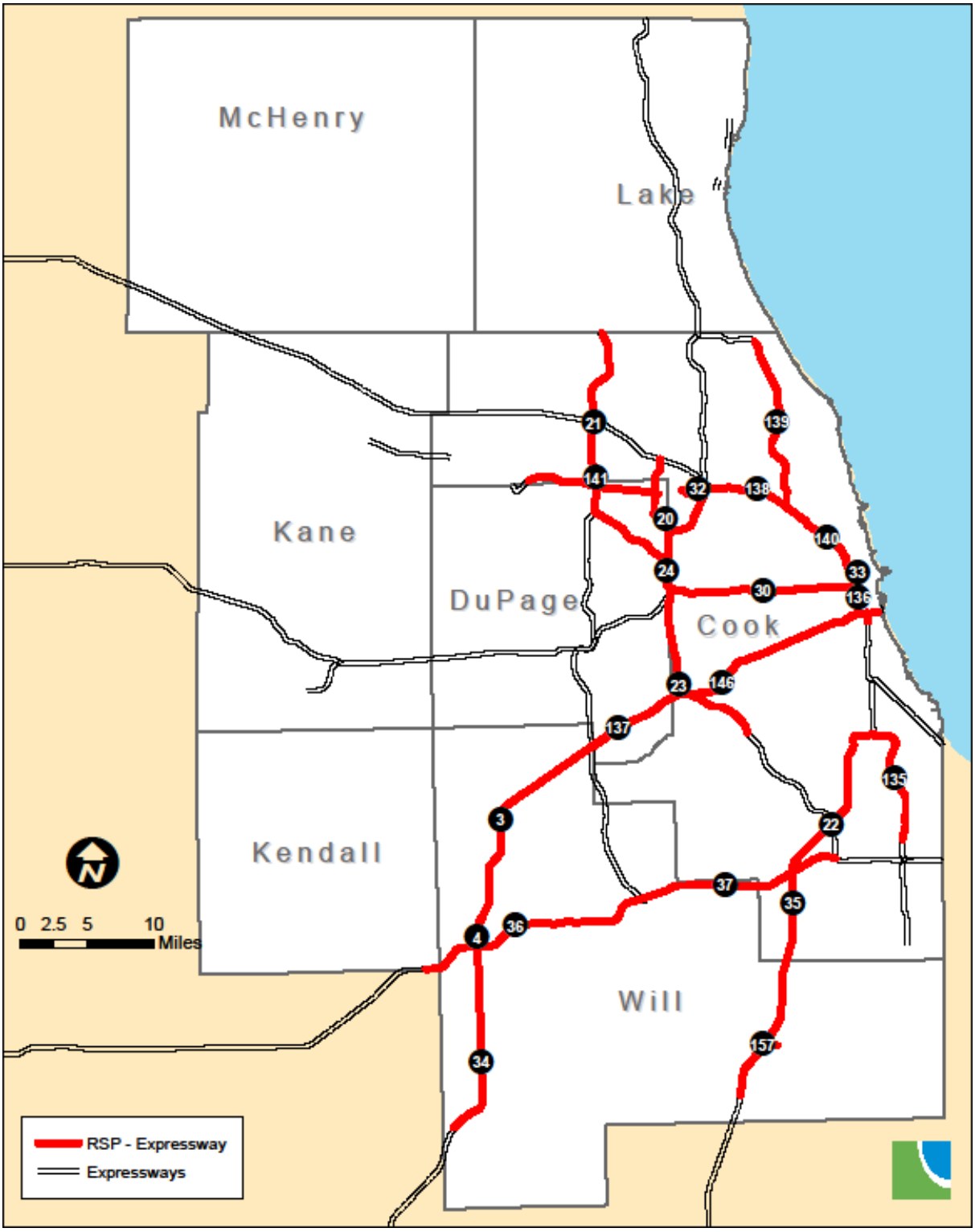
Note that project submitters may develop a project proposal comprising a program of similar projects if individual projects would not meet the proposed thresholds. Projects that change capacity are those with non-exempt Transportation Improvement Program (TIP) work types[1], in other words those that are already considered under federal rules to demonstrate air quality conformity.

To identify candidate RSPs, CMAP solicited projects from partner agencies. Regional transportation implementors submitted both unconstructed projects previously identified in ON TO 2050 and new projects considered for the first time under the plan update process. A total of 75 projects were considered.

The final universe of projects to be considered for inclusion in the ON TO 2050 Update is shown in Figures 1 through 3 and listed under “Project descriptions” in this report.

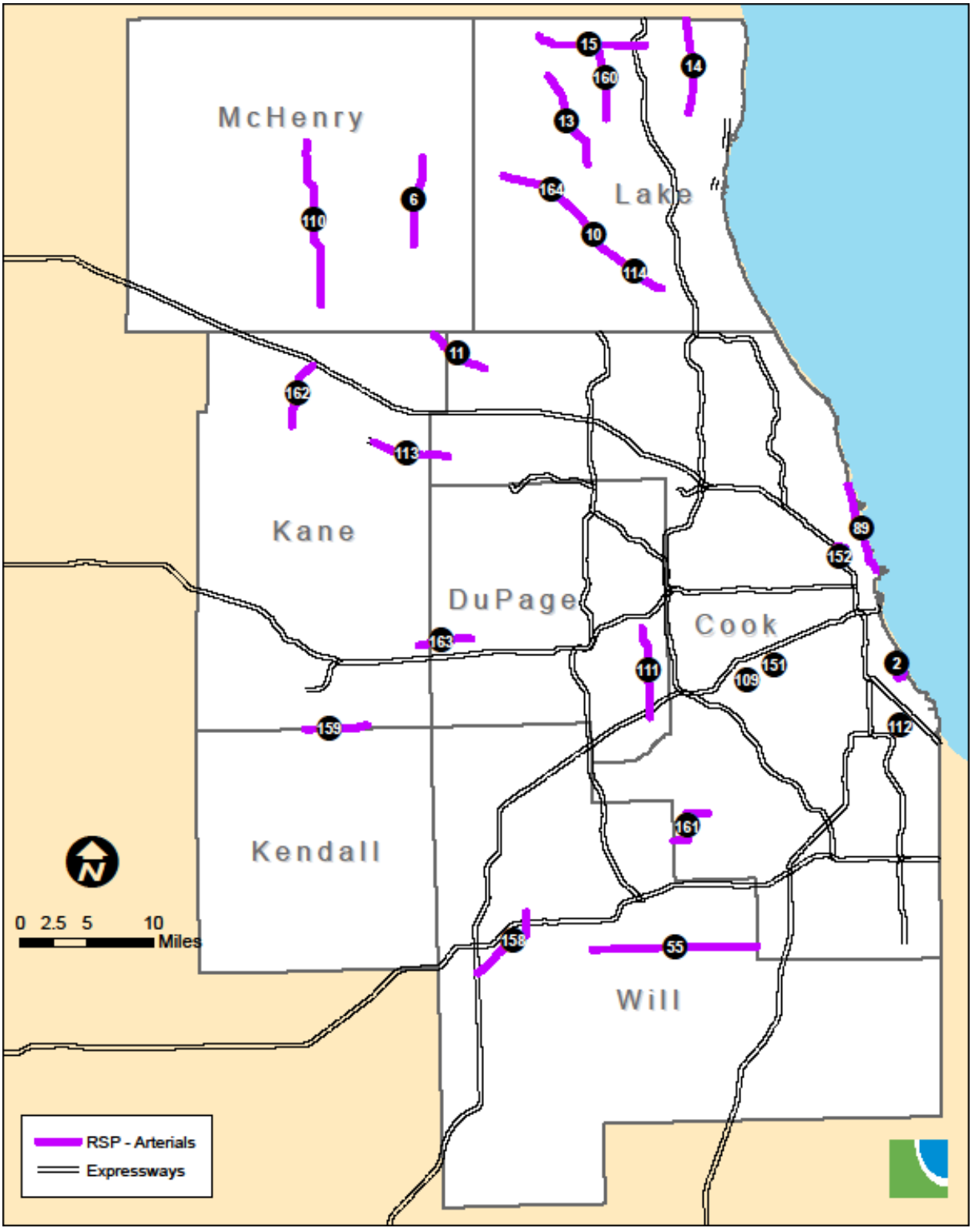
[1] Chicago Metropolitan Agency for Planning, “Transportation Improvement Program Work Types,” April 2017, http://www.cmap.illinois.gov/documents/10180/33012/TIP+Work+Types_Updated+2-19-13.pdf/780844b6-4d26-4c00-9eeb-0a19e296b9f7.

Figure 1. Proposed Regionally Significant Projects – Expressways



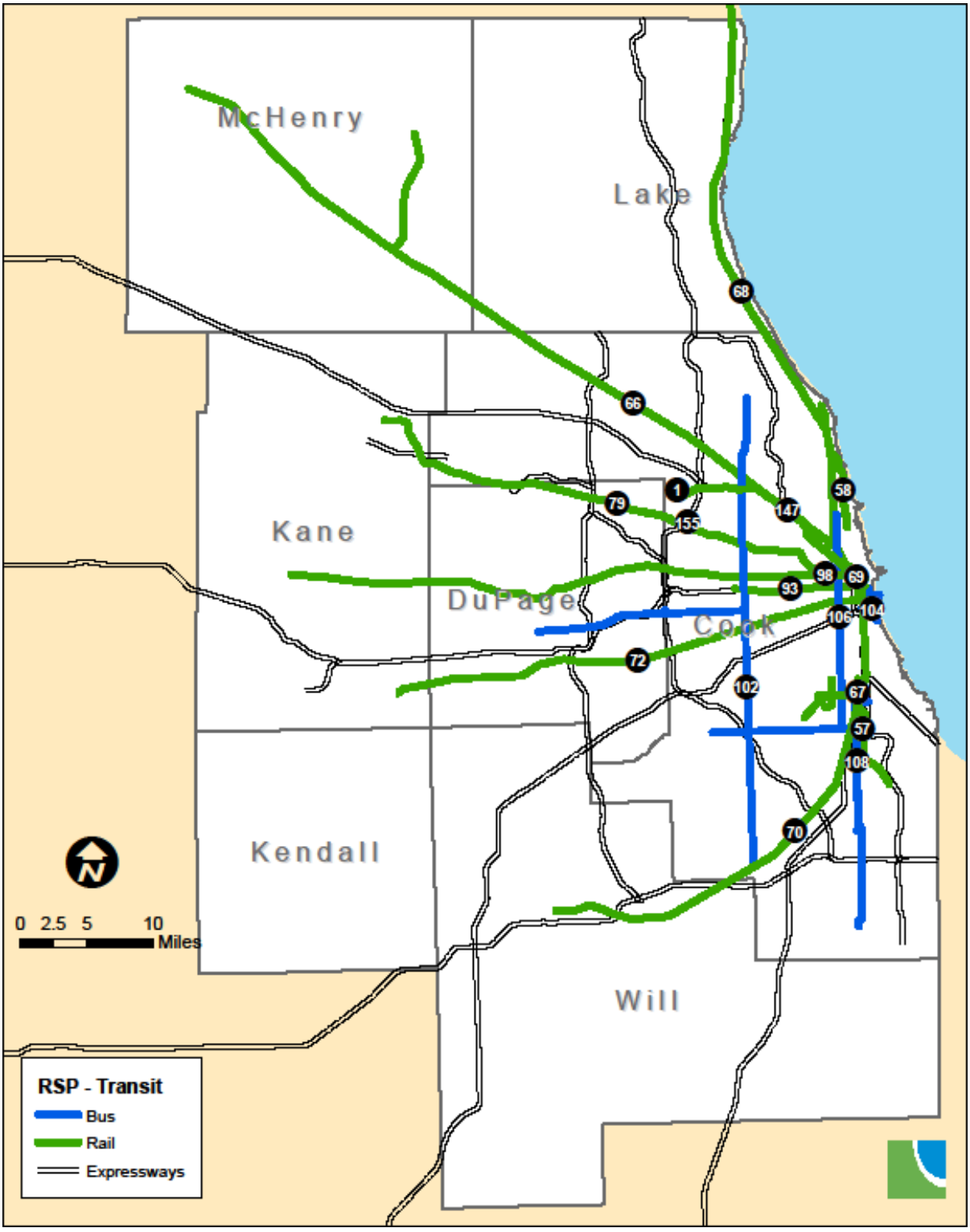
Source: Chicago Metropolitan Agency for Planning.

Figure 2. Proposed Regionally Significant Projects – Arterials



Source: Chicago Metropolitan Agency for Planning.

Figure 3. Proposed Regionally Significant Projects – Transit



Source: Chicago Metropolitan Agency for Planning.

Project evaluation

Project cost estimates

This section presents the estimated cost of all the major capital projects considered and documents the estimation methodology. Federal rules on fiscal constraint require costs to be in Year of Expenditure dollars (YOE$) and to include capital as well as operations and maintenance (O&M) costs. Estimates of both types of costs therefore are needed, as well as the years in which these expenditures are expected to take place. CMAP staff worked with implementers to update project information including scope, costs, phasing plans, and the portion of the project cost that would involve the addition of new capacity. Understanding the project cost dedicated to adding capacity versus the amount needed for maintenance is important in this process as the two cost categories have different budgetary constraints within the planning process.

Capital costs

In most cases, capital costs were provided by the project submitter. Note that the level of analysis and engineering completed varies greatly between projects, such that some costs and benefits presented are better understood than others.

When provided in current or earlier year dollars, costs were escalated to YOE$ by assuming 2.5 percent annual cost inflation, the same assumption used in the Financial Plan for Transportation for the ON TO 2050 Update. Project phasing was taken into account when that information was available. When the project submitter provided costs in YOE$ but used a different cost escalation factor, costs were deflated using the project submitter's factor to the base year and then escalated at 2.5 percent.

In CMAP's Financial Plan for Transportation for the ON TO 2050 Update, the constrained cost of RSPs is only the amount needed to build and operate new capacity. However, many RSPs include elements of reconstruction as well as capacity addition. For example, add-lanes projects frequently include reconstruction of the existing facility along with addition of the new lane. The proportion of capital costs required for new capacity and reconstruction was provided directly by the project submitter.[2] The Financial Plan for Transportation for the ON TO 2050 Update separately includes the cost to reconstruct existing facilities under the operations and maintenance and the system enhancement allocation categories.

Operating costs

Operating costs for highway projects were estimated by applying costs per year per lane-mile to the amount of new capacity, then inflating the cost each year by 2.5 percent. The unit cost estimate for non-tolled highways was derived from IDOT District 1 costs for Fiscal Year 2009-13

[2] The definition of "new capacity" is not necessarily the same as that used for programs such as FTA core capacity.

operations on the interstate and arterial system. The estimate for Tollway projects was derived from Illinois Tollway-developed operating costs for the Elgin-O'Hare Western Access project.

Transit operating costs were estimated using the revenue service hours calculated from modeled service, and unit costs taken from the National Transit Database (NTD). Again, transit operating costs were inflated by 2.5 percent each year. In a few cases, improvements to existing lines are expected to decrease operating costs, generally by making service faster and thus reducing revenue hours required for a given number of runs. Anticipated fares associated with a project – calculated as the service board-specific average fare from the National Transit Database (NTD) times the annual number of new riders on the project – were subtracted from the operating cost.

Cost summary for projects

The full list of projects with costs is presented in Table 1. The table below contains the new capacity costs considered for fiscal constraint, while the last column contains the project reconstruction costs. Costs for new capacity are shown in YOE$ and are calculated from the project submitter-provided costs, implementation years and percent of cost for new capacity. Note that, ultimately, some projects will have revenues associated with them from tolling and value capture that help offset their costs in the Financial Plan for Transportation for the ON TO 2050 Update.

Table 1. Costs of Regionally Significant Projects

	Project Information				Cost for new capacity			
Project	**RSP ID**	**Project submitter**	**Est. start year for construction**	**Percent of cost for new capacity**	**Capital cost, YOE$b**	**Operating costs to 2050, YOE$b**	**Total project cost, YOE$b**	**Reconstruction costs, YOE$b**
Arterial Projects								
Elston-Armitage-Ashland-Cortland Intersection Improvement	152	CDOT	2027	0%	0.00	0.000	0.00	0.30
South Lakefront Improvements-Roadway and Path Improvements	A2	CDOT	2023	20%	0.04	0.000	0.04	0.15
IL 31/Front St from IL 120 to IL 176	6	IDOT	2026	50%	0.06	0.003	0.07	0.06
IL 60/IL 83 from IL 176 to Townline Rd (IL 60)	10	IDOT	2030	50%	0.08	0.001	0.08	0.08
IL 62/Algonquin Rd from IL 25 to IL 68	11	IDOT	2035	50%	0.09	0.001	0.09	0.09
IL 83 Milwaukee Ave from Petite Lake Rd to IL 120	13	IDOT	2035	50%	0.14	0.002	0.14	0.14
IL 131 Green Bay Road from Russell Road to Sunset Ave	14	IDOT	2030	50%	0.04	0.003	0.05	0.04
IL 173 Rosecrans Rd from IL 59 to US 41	15	IDOT	2035	50%	0.19	0.002	0.19	0.19
Caton Farm Bruce Road Corridor from US 30 to IL 7/159th St	53	Will Co	2040	69%	0.61	0.004	0.62	0.28
Laraway Road from US 52 to IL 43 Harlem Ave	55	Will Co	2040	50%	0.07	0.003	0.07	0.07
North DuSable Lake Shore Drive Improvements	89	IDOT	2035	10%	0.62	0.002	0.62	5.59
IL 43 (Harlem Avenue) at 65th Street / BRC RR	109	IDOT	2030	5%	0.01	0.000	0.01	0.15
IL 47 from Charles Rd to Reed Rd - RSP 110	110	IDOT	2025	50%	0.24	0.006	0.25	0.24
IL 83 Kingery Hwy from 31st St to N of 55th St, 63rd St to Central Ave	111	IDOT	2036	50%	0.10	0.002	0.10	0.10
US 12/US 20 at Stony Island Ave	112	IDOT	2025	5%	0.01	0.001	0.01	0.10
US 20 Lake St from W of Randall Rd to E of Shales Parkway	113	IDOT	2026	5%	0.01	0.003	0.01	0.12

	Project Information				Cost for new capacity			
Project	**RSP ID**	**Project submitter**	**Est. start year for construction**	**Percent of cost for new capacity**	**Capital cost, YOE$b**	**Operating costs to 2050, YOE$b**	**Total project cost, YOE$b**	**Reconstruction costs, YOE$b**
Arterial Projects								
US 45/IL 83/Old Half Day Rd from IL 60 to Ill 22	114	IDOT	2030	50%	0.10	0.001	0.10	0.10
Central Av at BRC RR (CREATE)	151	IDOT	2021	0%	0.00	0.000	0.00	0.18
US 6 from I-55 to US 52	158	IDOT	2040	50%	0.14	0.000	0.14	0.14
US 30 from IL 47 to Albright Rd	159	IDOT	2040	50%	0.09	0.000	0.09	0.09
US 45 and Milburn By-Pass from IL 173 to IL 132	160	IDOT	2040	50%	0.08	0.001	0.09	0.08
IL 47 from s/o I-90 to s/o Old Plank Rd	162	IDOT	2040	50%	0.11	0.001	0.11	0.11
IL 56 from Kirk Rd to IL 59	163	IDOT	2040	50%	0.11	0.001	0.11	0.11
IL 60 from IL 120 to IL 176	164	IDOT	2040	50%	0.15	0.001	0.16	0.15
IL 7/143rd St from Will-Cook Line to IL 7/Southwest Hwy	161	IDOT	2023	40%	0.07	0.006	0.08	0.11
Expressway Projects								
I-294 Tri-state Tollway at I-57 Interchange Addition	22	IDOT	2010	50%	0.03	0.001	0.03	0.03
I-290 Eisenhower Expy from US 12/45/20 Mannheim Rd to Racine Ave	30	IDOT	2028	20%	0.76	0.012	0.77	3.04
I-190 Access Improvements	32	IDOT	2026	20%	0.21	0.003	0.21	0.82
I-90/I-94 Circle Interchange from I-290 Congress Parkway to Adams St	33	IDOT	2023	20%	0.00	0.001	0.00	0.00
I-55 from IL 129 to Lorenzo Rd, I-55 Frontage Rds from Kavanaugh Rd to Lorenzo Rd	34	IDOT	2040	20%	0.04	0.000	0.04	0.18
I-55 from I-80 to Coal City Rd	34	IDOT	2041	20%	0.25	0.009	0.25	0.98

	Project Information				Cost for new capacity			
Project	RSP ID	Project submitter	Est. start year for construction	Percent of cost for new capacity	Capital cost, YOE$b	Operating costs to 2050, YOE$b	Total project cost, YOE$b	Reconstruction costs, YOE$b
Expressway Projects								
I-57 Reconstruction (I-80 to Kankakee County)	35	IDOT	2045	0%	0.00	0.000	0.00	1.63
I-80 Reconstruction from Ridge Rd to US 30 Lincoln Hwy	36	IDOT	2030	20%	0.28	0.014	0.30	1.13
I-80 from US 30 to I-294	37	IDOT	2040	80%	2.88	0.008	2.89	0.72
I-94 Bishop Ford Expressway Reconstruction (I-57 to US 6)	135	IDOT	2030	0%	0.00	0.000	0.00	1.13
I-90/1-94 Kennedy and Dan Ryan Expressways Reconstruction (Hubbard ST to 31st)	136	IDOT	2030	0%	0.00	0.000	0.00	5.03
I-55 Stevenson Expressway Reconstruction (LSD to I-80 excluding RSP 146 limits)	137	IDOT	2035	0%	0.00	0.000	0.00	5.20
I-90 Kennedy Expressway Reconstruction (Jane Addams to I-94 merge)	138	IDOT	2035	0%	0.00	0.000	0.00	2.80
I-94 Edens Expressway Reconstruction (Tollway spur to Lawrence Ave)	139	IDOT	2035	0%	0.00	0.000	0.00	2.92
I-90/I-94 Kennedy Reconstruction (Edens Junction to Hubbard ST)	140	IDOT	2045	0%	0.00	0.000	0.00	3.23
I-290/IL-53 Reconstruction (I-88 to Lake-Cook RD)	141	IDOT	2045	0%	0.00	0.000	0.00	5.89
I-57 Reconstruction (I-94 to I-80)	142	IDOT	2045	0%	0.00	0.000	0.00	2.47
I-55 Managed Lane from I-355 to I-90 I-94 (I-55 Stevenson Express Toll Lanes)	146	IDOT	2040	80%	0.71	0.021	0.73	0.18
I-57 @ Eagle Lake Rd	157	IDOT	2026	100%	0.23	0.000	0.23	0.00

	Project Information				Cost for new capacity			
Project	**RSP ID**	**Project submitter**	**Est. start year for construction**	**Percent of cost for new capacity**	**Capital cost, YOE$b**	**Operating costs to 2050, YOE$b**	**Total project cost, YOE$b**	**Reconstruction costs, YOE$b**
Expressway Projects								
I-55 from Weber Road to US 30; I-55 At Airport/Lockport Rd & At IL 126	A3	IDOT	2028	13%	0.03	0.000	0.03	0.19
I-55 from I-80 to US 52 and @ ILL 59; US 52/Jefferson St from River Rd to Houbolt Rd	A4	IDOT	2028	16%	0.04	0.009	0.05	0.20
Elgin O'Hare Western Access	20	Tollway	2023	100%	0.70	0.063	0.76	0.00
I-290/IL 53 Interchange Improvement	21	Tollway	2032	0%	0.00	0.001	0.00	0.45
I-294 Central Tri-State Reconstruction and Mobility Improvements	23	Tollway	2018	10%	0.07	0.026	0.10	0.62
I-290/I-88/I-294 Interchange Improvement	24	Tollway	2018	0%	0.00	0.004	0.00	0.41
Transit Projects								
Chicago Union Station Master Plan Implementation	85	CDOT	2026	100%	1.13	0.026	1.16	0.00
Chicago Union Station Master Plan Implementation-Phase II	88	CDOT	2041	100%	2.00	0.051	2.05	0.00
South Lakefront-Museum Campus Access Improvements	104	CDOT	2025	100%	0.22	-0.018	0.20	0.00
Ashland-Ogden Metra Infill Station	153	CDOT	2030	100%	0.34	-0.022	0.31	0.00
O'Hare Express Service	A1	CDOT	2025	100%	0.00	0.000	0.00	1.10
Red Line Extension from US 12 US 20 95th St to 130th	57	CTA	2025	95%	2.31	0.320	2.63	0.12
North Red/Purple Line Modernization	58A	CTA	2019	62%	0.39	0.000	0.39	0.24
Red Purple Modernization Future Phases	58B	CTA	2030	60%	3.60	-0.117	3.48	2.40

	Project Information				Cost for new capacity			
Project	**RSP ID**	**Project submitter**	**Est. start year for construction**	**Percent of cost for new capacity**	**Capital cost, YOE$b**	**Operating costs to 2050, YOE$b**	**Total project cost, YOE$b**	**Reconstruction costs, YOE$b**
Transit Projects								
CTA Blue Line Forest Park Reconstruction	93	CTA	2023	15%	0.26	-0.086	0.17	1.47
Ashland Avenue from Irving Park Road to 95th Street (Ashland BRT)	106	CTA	2027	75%	0.12	0.087	0.21	.04
Blue Line Capacity Project	147	CTA	2030	54%	0.59	0.392	0.99	0.51
Brown Line Core Capacity	165	CTA	2041	50%	1.22	-0.058	1.16	1.21
South Halsted BRT	108	CTA/Pace	2026	75%	0.18	0.082	0.21	0.04
Southwest Service Improvements / 75th Street Corridor Improvement Project	67	IDOT	2013	25%	0.33	0.000	0.33	0.99
BNSF Extension-Oswego/Plano	71	Kendall Co	2045	100%	1.27	0.029	1.30	0.00
UP NW Line New Start	66	Metra	2026	50%	0.30	-0.139	0.16	0.30
Metra UP North Improvements	68	Metra	2036	25%	0.14	0.136	0.28	0.43
UP West Line - New Start	69	Metra	2033	25%	0.17	-0.118	0.05	0.52
Metra Rock Island Improvements	70	Metra	2029	25%	0.15	0.101	0.25	0.46
BNSF Improvements	72	Metra	2040	25%	0.11	0.042	0.15	0.32
Milwaukee District West Improvements	79	Metra	2040	25%	0.25	-0.039	0.21	0.75
A-2 Crossing Rebuild	98	Metra	2028	25%	0.33	0.046	0.37	0.98
Metra Milwaukee Corridor Improvements	156	Metra	2030	75%	N/A	N/A	N/A	N/A
I-294 Tri-State Express Bus Stations	155	Pace	2026	100%	0.13	0.157	0.28	0.00
Pulse Near Term	102A	Pace	2019	100%	0.11	-0.006	0.11	0.00

Evaluation measures

An objective of the planning process is to identify projects which help the region meet its transportation, economic, land use, environmental, and quality of life goals. The evaluation framework for the update is the same one used for ON TO 2050; however, there are several important differences from the original ON TO 2050 project evaluations:

- Revised socioeconomic forecast – New population and employment forecasts were developed for the plan update to take advantage of more recent Census data on the regional population and to account for the impacts of the COVID-19 pandemic on the region's economy. A new land use model (UrbanSim) was used to develop the spatial distribution of households, population, and jobs in 2050. This local area allocation of people and employment provides the foundation for the analysis of the RSPs. More information about UrbanSim and the regional socioeconomic forecast is available in the Regional Socioeconomic Forecast Appendix. The socioeconomic data used for the RSP evaluations was a draft version of the 2050 forecast for the plan Update

- Travel demand model update – CMAP's trip-based travel demand model was one of the primary tools used to conduct the RSP evaluations. The travel model was updated to reflect the travel behavior captured in the most recent household travel survey (My Daily Travel) which concluded data collection in spring 2019. Additionally, other procedural improvements, such as expanding the number of transportation mode options and including a work from home allocation model, were implemented in the model. More information can be found in the Travel Demand Model Documentation Appendix.

- Updated data inputs – Data input files used to conduct the evaluations were updated in instances where more recent data were available. In addition to the population and employment data, this included revised information on green infrastructure, water resources, bridge and pavement condition, traffic safety and reliability, and transit asset conditions.

The RSP evaluation framework classifies performance metrics into three categories: addressing today's needs, improving 2050 travel, and implementing ON TO 2050 planning priorities. The following discussion describes the project evaluation measures within those categories.

Addressing today's needs

Given the region's scarce resources and the significant deficiencies on the system – ranging from safety problems on highways to capacity constraints on the rail system – ON TO 2050 evaluates projects based on the severity of existing needs at a project location. If a proposed highway capacity project addresses an area with high congestion, high crash rate, and poor pavement condition, then it should be a higher priority than a project where these needs are not as great. Different measures are used to evaluate the needs that transit (Table 2) and

highway (Table 3) projects address. For more details on the evaluation measures, see Appendix A.

Table 2. Current need measures for transit project evaluation

Average asset condition	Individual assets or groups of assets across the system have been assigned a numerical rating based on age and FTA's asset condition scale where 5 is "like new" and 1 is "in need of immediate repair." These conditions are averaged across each line and weighted by estimated replacement cost in order to develop this measure. Low numbers indicate that a line has many old assets in need of replacement; high numbers indicate that a particular line is newer. A project that addresses assets in poorer condition is considered a higher priority.
Capacity constraint	Capacity constraints limit the amount of service that can be provided and lead to crowded conditions. Capacity is measured as the ratio of maximum passenger loads to capacity on CTA rail and, on Metra, the number of trains each day where 95% or more of the seats are occupied. Projects that address more significant capacity constraints are considered higher priority. The raw capacity constraint values were also rescaled to compare more easily between Metra and CTA in a way described in the Appendix A.
Reliability	Reliability is measured as route on-time performance (Metra) or headway adherence (bus, CTA rail). The source is transit agency data.
ADA improvement	ADA compliance is a significant need on the existing transit system and an area where the transit agencies will be making significant investments. This measure is "Yes" if a project significantly reduces or eliminates an existing ADA deficiency. Otherwise, the rating is "No."

Table 3. Current need measures for highway project evaluation

Structural deficiency of bridges	Measured as square feet of bridge deck on bridges along a project that are categorized as deficient. Projects that address a greater amount of structurally deficient bridge deck area are considered higher priority.
Pavement condition	For expressways and arterials, a combination of Condition Rating System (CRS) and International Roughness Index (IRI) is used, scaled 1-100 from best-to-worst condition for the NHS system. Projects that address pavements in worse condition are considered higher priority and receive a higher index value.
Safety	The severity of safety problems addressed by a project is measured by the rate of serious injury and fatal crashes occurring per VMT on the project segments, scaled 1-100. A project addressing a more severe safety problem is considered a higher priority and receives a higher index value.
Mobility	Mobility is measured as a combination of the intensity of congestion (measured with the Travel Time Index, or TTI) and the duration of congestion (measured as hours of congestion throughout the day). The measures are weighted equally and rescaled 1-100. A capacity project addressing a more severe congestion problem is considered a higher priority and receives a higher index value.
Reliability	This measure rates the severity of existing travel time unreliability using the planning time index (PTI), scaled to a value 1-100. A capacity project addressing a more severe reliability problem is considered a higher priority and receives a higher index value.

2050 performance

Projects are also evaluated based on how they are expected to perform in 2050 (Tables 4 and 5). CMAP's trip-based travel demand model was used to model each expressway and transit project and estimate reductions in congestion, changes in crash rates, and changes in other measures expected from implementing candidate projects. The evaluation was supported by generic modeling on the NHS arterials using the travel model rather than on a project-by-project basis. For ON TO 2050 the Regional Transportation Authority (RTA) computed 2050 transit project performance using a combination of the FTA's Simplified Trips on Projects (STOPS) model developed and calibrated for northeastern Illinois and the RTA Access Tool created to measure the accessibility of jobs by transit. For the ON TO 2050 Update, those processes were replaced with comparable ones that relied on the travel demand model.

Travel conditions in the year 2050 were modeled both with and without each of the proposed RSPs. The change between no-build (without the project) and build (with the project) measures was calculated by using the difference between the appropriate scenarios. All projects were evaluated using the region's existing and committed network, which includes the existing 2019 road and transit network plus projects from the Northeastern Illinois TIP[3] that are expected to exist in 2050. Each build scenario included the existing and committed network plus the project in question. For phased transit projects (such as the Red Purple Modernization), later phases had their no-build scenarios adjusted to included earlier phases on top of the 2019 base network. The characteristics of individual projects were coded into the model based on information supplied by the project submitters. More details on the evaluation measures are available in Appendix A.

In addition to reporting absolute project benefits, project cost-effectiveness was also computed using the current year (2021) capital cost of the project plus 10 years of operating cost, divided by each evaluation measure. This results in an estimated cost per unit of change, for example dollars per new rider or dollars per minute of travel time change.

Table 4. 2050 performance measures for transit project evaluation

Project ridership (daily)	The number of boardings on the project in 2050, reflecting the total number of users benefitted by the project.
Regional trips (daily)	The incremental change in transit use, measured as linked transit trips per day, caused by the project in 2050. This shows how much a project increases overall regional trip making.
Work trip transit travel time (minutes)	This measure computes the difference in average commute time for workers region wide. Commute time includes in-vehicle transit time, wait time, walk transfer time, and auto time to access transit.
Project user commute time (minutes)	This measure computes the difference in average commute time for project users where transit could be used in both build and no-build scenarios. It excludes areas where transit was not available in the no-build scenario. The components of commute time are the same as above.

[3] The TIP, available at https://etip.cmap.illinois.gov/, is a compendium of funded projects on which some phase of work is expected in the next five years.

Job accessibility (count of jobs)	Measures the change in the average number of jobs each household in the region can reach by transit within both 60 and 90 minutes. The time thresholds include in-vehicle transit time, wait time, walk transfer time, and auto time to access transit.
Fatalities and serious injuries per year	This is an estimate of fatalities and serious injuries (type K and A) avoided due to mode shift from auto to transit.

Table 5. 2050 performance measures for expressway project evaluation

Congested vehicle hours traveled (VHT) in region (hours daily)	Congested VHT measures the time all vehicles in total spend in congestion. If a project reduced a typical trip time in congested conditions by five minutes for 10,000 cars, then the change in congested VHT would be five minutes * 10,000 cars ÷ 60 minutes/hour = 833 hours saved.
Congested VHT in corridor (hours daily)	Because in some cases a project may have a modest impact on performance at the regional scale but a large impact in the vicinity of the project, this measure assesses the reduction in congested VHT for all vehicles within a five-mile buffer around the project.
Regional work trip travel time (minutes)	Measures the change in the average travel time for commutes beginning within the CMAP seven-county area.
Work trip travel time within corridor (minutes)	Measures the change in the average travel time for commutes beginning only within the five-mile buffer around the project.
Job accessibility (count of jobs)	Measures the change in the average number of jobs each household can reach by auto within 45 minutes.
Fatalities and serious injuries per year	This measure estimates the change in fatalities and serious injuries (type K and A) resulting from the project based on five-year crash rates for interstates and non-interstates.

Planning priorities

The projects were assessed for their contributions to ON TO 2050 Update priorities (Table 6). Given the important role of Inclusive Growth in ON TO 2050, the evaluation looks closely at how well projects would benefit residents of Economically Disconnected Areas (EDAs), places with high concentrations of low-income residents, persons of color, or residents with limited English language proficiency. To assess a project's ability to help the region grow economically, the analysis also examines aspects of the economic impact and support of freight movement of proposed projects. To support ON TO 2050's reinvestment recommendations, the analysis examines how well a project supports infill development in already-developed parts of the region. For highway investments, the analysis furthermore examines how projects might encourage development in priority conservation areas and sensitive water resources, or place additional burdens on areas with groundwater scarcity. More details on the evaluation measures are available in Appendix A.

Table 6. Planning priorities for transit projects

Project use by residents of Economically Disconnected Areas (EDAs)	This is the proportion of project ridership estimated to come from EDAs and measures the degree to which a project directly benefits residents of those areas.
Support for infill development	Captures the degree to which a project supports growth in areas that are appropriate for infill development based on a 1-100 index. Projects that serve areas that are highly supportive of infill receive up to 100, while projects that serve areas that minimally support infill score as little as 0.
Economic impact due to industry clustering	Annual dollar value of increased labor productivity by enhanced businesses-to-business interaction and access to larger labor pool brought about by a project's changes to transit travel times.
Freight improvement	Measures the impact the project will have on critical freight supporting infrastructure such as truck routes and freight rail. Benefits to freight are rated on a -25 to 100 scale, with -25 representing potential disbenefits and 100 representing significant improvements to freight movement.
Number of low barrier to entry jobs accessible for residents of EDAs	This measure assesses the average number of higher-wage jobs that do not require a college degree that are accessible to households living in EDAs within 60 and 90 minutes by transit.
Greenhouse gas emissions (metric tons/day in 2050)	By reducing auto vehicle miles traveled (VMT), transit projects tend to reduce greenhouse gas emissions.

Table 7. Planning priorities for highway projects

Congested VHT for heavy trucks in region (hours daily)	To estimate project benefits to freight, this measure captures the change in congested VHT for heavy commercial vehicles.
Congested VHT for heavy trucks in corridor (hours daily)	Measures the change in congested VHT for heavy commercial vehicles only within a five-mile buffer around the project.
Freight improvement	Measures the impact the project will have on freight based on specific changes the project will include. This is the same measure used to evaluate transit projects, listed in Table 6.
Greenhouse gas (GHG) emissions (metric tons/day)	Emissions of GHGs by autos is sensitive both to total VMT and vehicle speed.
Development pressure in conservation areas (count of new households)	By increasing highway access, highway projects may encourage development in important conservation areas. For expressways, this measure estimates the potential increase in households in conservation areas. For arterials, the measure of impact is simply the number of acres of priority conservation area within the project's travel shed, converted to a 1-100 score.
Direct impact on conservation areas	Conservation areas within close proximity to a transportation project can be damaged in the process of roadway expansion, or by increased traffic volumes. For expressway projects that add capacity through new roadway or expansion of existing roadway, this measure indicates the level of direct impact a project has on nearby natural areas. The measure is a function of the amount of conservation area overlapped by a project and a new lane factor. This measure uses a relative index to evaluate projects against each other.
Development pressure in areas at risk of groundwater desaturation (count of new households)	Similar to development pressure in conservation areas, this measure evaluates the potential increase in number of households in areas with groundwater desaturation.
Impervious area (acres)	Increased impervious surface is a proxy for negative impacts on water resources. This measure estimates total new impervious surface created either as a direct result of the road project or based on the projected spinoff development.

Project use by residents of EDAs (percent of VMT)	This is the proportion of VMT on a project from trips originating in EDAs, and reflects the degree to which a project directly benefits the residents those areas.
Fine particulate matter emissions in EDAs (g/day)	Fine particulate emissions have a negative impact on public health. This measure determines the degree to which a project would cause changes in fine particulate matter emissions in EDAs where health impacts are expected to be especially high.
Accessibility of low barrier to entry jobs for residents of EDAs (count of jobs)	This measure assesses the average number of higher-wage jobs that do not require a college degree that are accessible to households living in EDAs within 45 minutes by auto.
Economic impact due to industry clustering (dollars per year)	Dollar value of increased labor productivity by enhanced businesses-business interaction and access to larger labor pool brought about by a project's changes to transit travel times.
Support for infill development	Captures the degree to which a project supports growth in areas that are appropriate for infill development based on a 1-100 index. Projects that serve areas that are highly supportive of infill receive up to 100, while projects that serve areas that minimally support infill score as little as 0.
Benefit to key industries	This measure assesses the degree to which projects benefit key industries. Key industries were identified by the number of jobs in regionally specialized, export-oriented industries with higher than average in-region transportation costs. This value is indexed 1-100, with 100 representing the best score for a project.
Benefit to areas with industrial vacancy	This measure identifies the degree to which projects benefit distressed industrial areas. Distressed industrial areas were identified by current vacancy. Projects serving distressed industrial areas are considered to be higher priority because of their ability to improve these area's competitiveness. This value is indexed 1-100, with 100 representing the best score for a project.

Full evaluation results

The following projects were not evaluated, as they are already in the construction phase or are funded:

- RSP 24 – I-290/I-294 Interchange Improvement
- RSP 33 – Jane Byrne Interchange Reconstruction
- RSP 58A – North Red/Purple Line Modernization Phase One
- RSP 67 – Southwest Service Improvements/75th Street Corridor Improvement Program
- RSP 69 – UP-West Upgrade
- RSP 85 – Chicago Union Station Master Plan Implementation Phase 1
- RSP 93 – Forest Park Reconstruction Phase 1

The following tables present the performance data collected for each project.

Transit

Table 8. Transit project evaluation for today's needs (projects with no data excluded)

				Capacity constraint			
Project submitter	**RSP ID**	**Description**	**Avg. Asset condition**	**Raw****	**Rescaled**	**Reliability**	**ADA Improvement**
CTA	58A	North Red/Purple Line Modernization Phase One	TBD	1.15	9	TBD	Yes
CTA	58B	Red Purple Modernization Future Phases	TBD	1.15	9	TBD	Yes
Metra	66	UP NW Line New Start (3870) - RSP 66	TBD			93.0%	No
Metra	68	Metra UP North Improvements - RSP 68	TBD	3	3	95.3%	No
Metra	69	UP West Line - New Start (3869) - RSP 69	TBD			92.3%	No
Metra	70	Metra Rock Island Improvements - RSP 70	TBD			92.0%	No
Metra	72	BNSF Improvements - RSP 72	TBD	6	6	95.0%	No
Metra	79	Milwaukee District West Improvements - RSP 79	TBD			95.1%	No
CDOT	88	Chicago Union Station Master Plan Implementation-Phase II	TBD	TBD		TBD	Yes
CTA	93B	CTA Blue Line Forest Park Reconstruction, RSP -93	TBD	1.00	6	TBD	Yes
Metra	98	A-2 Crossing Rebuild RSP - 98	TBD			TBD	No
CTA	147	Blue Line Capacity Project - RSP 147	TBD		6	TBD	No
Metra	156	Metra Milwaukee Corridor Improvements	TBD			93.6%	TBD
CTA	165	Brown Line Core Capacity	TBD	1.10	8	TBD	No

Table 9. Transit project 2050 performance

			Modeled Characteristics		2050 Performance						
Project submitter	RSP ID	Description	Change in annual bus revenue hours ('000s)	Change in annual fixed guideway revenue hours ('000s)	Project daily ridership ('000s)	Change in daily regional transit trips ('000s)	Change in work trip travel time (minutes)	Change in project user commute time (minutes)	Change in # of jobs accessible within 90 min, for avg. resident ('000s)	Change in # of jobs accessible within 60 min. for avg. resident ('000s)	Change in Fatalities and Serious Injuries per year
CTA	57	Red Line South Ext.	10	14	135	5	(0.15)	(0.21)	3	4	-4.9
CTA	58B	Red Purple Modernization Future Phases - RSP 58B	0	(1)	216	7	(0.08)	(0.01)	4	4	-9.1
Metra	66	UP NW Extension	0	4	3	1	(0.02)	(5.72)	17	9	-2.5
Metra	68	UP-N Improvements	0	21	31	5	(0.19)	(4.95)	12	8	-5.1
Metra	70	RI Improvements	0	7	19	4	(0.03)	(3.69)	8	8	-0.8
Kendall County	71	BNSF Extension-Oswego/Plano	*Project is undergoing final evaluation by CMAP staff*								
Metra	72	BNSF Improvements	0	8	55	7	(0.28)	(6.60)	24	20	-4.2
Metra	79	MD-W Improvements	0	3	31	6	(0.10)	(1.86)	11	5	-7.4
CDOT	88	West Loop TC Phase II	0	53	129	3	(1.04)	(3.36)	21	23	-1.5
CTA	93B	Forest Park Recons.	0	(2)	99	7	(0.12)	(0.44)	5	5	-4.9
Metra	98	A-2 Crossing Rebuild	*Project is undergoing final evaluation by CMAP staff*								
Pace	102	Pulse ART Routes	45	0	5	3	(0.04)	(8.04)	13	9	-1.0

			Modeled Characteristics		2050 Performance						
Project submitter	RSP ID	Description	Change in annual bus revenue hours ('000s)	Change in annual fixed guideway revenue hours ('000s)	Project daily ridership ('000s)	Change in daily regional transit trips ('000s)	Change in work trip travel time (minutes)	Change in project user commute time (minutes)	Change in # of jobs accessible within 90 min. for avg. resident ('000s)	Change in # of jobs accessible within 60 min. for avg. resident ('000s)	Change in Fatalities and Serious Injuries per year
CDOT	104	South Lakefront-Museum Campus Access Improvement	14	0	0	4	(0.05)	(2.63)	3	3	-5.4
CTA	106	Ashland Ave BRT	54	0	15	7	(0.17)	(3.39)	9	9	-2.7
CTA	108	South Halsted BRT	11	0	2	4	(0.08)	(1.35)	3	3	-2.9
CTA	147	Blue Line Capacity - O'Hare Branch	*Project is undergoing final evaluation by CMAP staff*								
CDOT	153	Ashland-Ogden Metra Infill Station	0	1	60	0	(0.03)	0.32	2	2	-1.1
Pace	154	South Halsted Bus Enhancements	12	0	0	4	(0.10)	(4.87)	4	4	-4.1
Pace	155	I-294 Tri-State Express Bus Stations	36	0	3	4	0.04	(33.01)	37	15	0.5
Metra	156	Metra Milwaukee Corridor/O'Hare Improvements (includes Airport Express)	0	9	1	6	(0.05)	(5.88)	4	4	-8.9
CTA	165	Brown Line Capacity Expansion	0	(5)	114	4	(0.12)	(0.49)	5	4	-5.7
CDOT	A1	O'Hare Express Service: RSP - A1	*Project is undergoing final evaluation by CMAP staff*								

Table 10. Transit project 2050 cost effectiveness

Project submitter	RSP ID	Description	Project cost characteristics		Cost-effectiveness of 2050 performance				
			2021 Capital cost $M	10 Years incremental operating cost $M	Dollars per project rider ('000s)	Dollars per change in regional ridership ('000s)	Dollars per change in work trip transit travel time $M	Dollars per change in jobs accessible in 60 minutes $M	Dollars per change in jobs accessible in 90 minutes $M
CTA	57	Red Line Extension	2.43	0.14	19	544	(17)	0.68	(13.83)
CTA	58A	North Red/Purple Line Modernization Phase One	0.62	-	Not evaluated				
CTA	58B	Red Purple Modernization Future Phases	6.00	(0.05)	28	794	(74)	1.57	141.57
Metra	66	UP NW Line New Start (3870) - RSP 66	0.53	(0.05)	182	460	(24)	0.06	2.28
Metra	67	Southwest Service Improvements / 75th Street Corridor Improvement Project	1.14	-	Not evaluated				
Metra	68	Metra UP North Improvements - RSP 68	0.40	0.09	16	103	(3)	0.06	5.36
Metra	69	UP West Line - New Start (3869) - RSP 69	0.51	(0.06)	Not evaluated				
Metra	70	Metra Rock Island Improvements - RSP 70	0.50	0.04	29	154	(18)	0.07	1.73
Kendall County	71	BNSF Extension-Oswego/Plano	0.70	0.05	*Project is undergoing final evaluation by CMAP staff*				
Metra	72	BNSF Improvements - RSP 72	0.27	0.04	6	45	(1)	0.02	0.45
Metra	79	Milwaukee District West Improvements - RSP 79	0.63	(0.03)	19	100	(6)	0.11	2.94
CDOT	85	Chicago Union Station Master Plan Implementation	1.00	0.01	Not evaluated				

Project submitter	RSP ID	Description	Project cost characteristics		Cost-effectiveness of 2050 performance				
			2021 Capital cost $M	10 Years incremental operating cost $M	Dollars per project rider ('000s)	Dollars per change in regional ridership ('000s)	Dollars per change in work trip transit travel time $M	Dollars per change in jobs accessible in 60 minutes $M	Dollars per change in jobs accessible in 90 minutes $M
CDOT	88	Chicago Union Station Master Plan Implementation-Phase II	2.00	0.05	16	812	(2)	0.09	1.87
CTA	93B	CTA Blue Line Forest Park Reconstruction, RSP -93	1.73	(0.08)	17	226	(14)	0.34	71.83
Metra	98	A-2 Crossing Rebuild RSP - 98	1.10	0.02	*Project is undergoing final evaluation by CMAP staff*				
Pace	102	Pace Short Term ART	0.15	(0.00)	32	57	(4)	0.02	0.21
CDOT	104	South Lakefront-Museum Campus Access Improvements RSP-104	0.20	(0.01)	1,224	47	(4)	0.06	3.33
CTA	106	Ashland Avenue from Irving Park Road to 95th Street (CTA 045.015 - Ashland BRT) - RSP 106	0.16	0.04	13	30	(1)	0.02	0.76
CTA	108	South Halsted BRT - RSP 108	0.15	0.03	94	48	(2)	0.06	5.31
CTA	147	Blue Line Capacity Project - RSP 147	1.10	0.18	*Project is undergoing final evaluation by CMAP staff*				
CDOT	153	Ashland-Ogden Metra Infill Station	0.27	(0.01)	4	611	(9)	0.12	(6.18)
Pace	154	South Halsted Bus Enhancements	0.04	0.02	138	13	(1)	0.02	1.71
Pace	155	I-294 Tri-State Express Bus Stations	0.11	0.06	56	48	4	0.01	0.21

Project submitter	RSP ID	Description	Project cost characteristics		Cost-effectiveness of 2050 performance				
			2021 Capital cost $M	10 Years incremental operating cost $M	Dollars per project rider ('000s)	Dollars per change in regional ridership ('000s)	Dollars per change in work trip transit travel time $M	Dollars per change in jobs accessible in 60 minutes $M	Dollars per change in jobs accessible in 90 minutes $M
Metra	156	Metra Milwaukee Corridor Improvements	-	0.04	80	7	(1)	0.01	0.73
CTA	165	Brown Line Core Capacity	2.43	(0.06)	21	542	(20)	0.55	17.95
CDOT	A1	O'Hare Express Service: RSP - A1	1.00	-	*Project is undergoing final evaluation by CMAP staff*				

NB = no benefit

Table 11. Transit project planning priorities

Project submitter	RSP ID	Description	Project use by residents of EDAs	Support for infill development	Economic impact due to industry clustering ($M)	Freight Improvement	Change in access to low barrier to entry jobs for residents of EDAs in 90 minutes	Change in access to low barrier to entry jobs for residents of EDAs in 60 minutes	Change in greenhouse gas emissions (metric tons/day)
CTA	57	Red Line South Ext.	*Project is undergoing final evaluation by CMAP staff*						
CTA	58B	Red Purple Modernization Future Phases - RSP 58B	25%	72%	#N/A	-	82	42	(124)
Metra	66	UP NW Extension	4%	34%	$45	-	218	209	(58)
Metra	68	UP-N Improvements	24%	64%	$42	-	660	91	(71)
Metra	70	RI Improvements	31%	56%	$33	50	519	314	(44)
Kendall County	71	BNSF Extension-Oswego/Plano	*Project is undergoing final evaluation by CMAP staff*						
Metra	72	BNSF Improvements	35%	66%	$185	25	864	676	(71)
Metra	79	MD-W Improvements	22%	67%	$52	25	725	202	(99)
CDOT	88	West Loop TC Phase II	30%	75%	$288	-	1,413	1,096	(48)
CTA	93B	Forest Park Recons.	29%	79%	#N/A	-	170	23	(85)
Metra	98	A-2 Crossing Rebuild	*Project is undergoing final evaluation by CMAP staff*						
Pace	102	Pulse ART Routes	28%	83%	$3	-	1,289	713	(44)
CDOT	104	South Lakefront-Museum Campus Access Improvement	2%	77%	$0	-	22	58	(85)
CTA	106	Ashland Ave BRT	55%	88%	$7	-	288	258	(68)

Project submitter	RSP ID	Description	Project use by residents of EDAs	Support for infill development	Economic impact due to industry clustering ($M)	Freight Improvement	Change in access to low barrier to entry jobs for residents of EDAs in 90 minutes	Change in access to low barrier to entry jobs for residents of EDAs in 60 minutes	Change in greenhouse gas emissions (metric tons/day)
CTA	108	South Halsted BRT	*Project is undergoing final evaluation by CMAP staff*						
CTA	147	Blue Line Capacity - O'Hare Branch	*Project is undergoing final evaluation by CMAP staff*						
CDOT	153	Ashland-Ogden Metra Infill Station	28%	67%	$56	-	NB	NB	(47)
Pace	154	South Halsted Bus Enhancements	*Project is undergoing final evaluation by CMAP staff*						
Pace	155	I-294 Tri-State Express Bus Stations	47%	62%	$3	-	3,071	804	(18)
Metra	156	Metra Milwaukee Corridor Improvements	13%	83%	$1	-	140	56	(108)
CTA	165	Brown Line Capacity Expansion	23%	72%	$114	-	163	132	(96)
CDOT	A1	O'Hare Express Service: RSP - A1	*Project is undergoing final evaluation by CMAP staff*						

NB = no benefit

Expressways

Table 12. Expressway project evaluation for today's needs

Project submitter	RSP ID	Description	Structural deficiency of bridges (thousands	Pavement condition	Safety	Mobility	Reliability
IDOT	22	I-294/I-57 Interchange Addition	New facility				
IDOT	30	I-290 Eisenhower Reconstruction and Managed Lane	0	33	9	91	92
IDOT	32	I-190 Access Improvements	57	33	12	57	48
IDOT	33	Jane Byrne Interchange Reconstruction	Not evaluated				
IDOT	34	I-55 Add Lanes and Reconstruction	0	23	74	22	40
IDOT	36	Western I-80 Reconstruction and Mobility Improvements	278	46	30	21	18
IDOT	37	I-80 Managed Lanes	0	30	43	23	22
IDOT	146	I-55 Stevenson Managed Lanes	65	29	32	63	62
IDOT	157	I-57 at Eagle Lake Road	New facility				
IDOT	A3	I-55 from Weber Road to US 30; I-55 at Airport/Lockport Road & at IL 126	0	66	32	11	14
IDOT	A4	I-55 - I-80 to US 52 and at IL 59; US 52 - River Road to Houbolt Road	0	66	5	6	2
Tollway	20	Elgin O'Hare Western Access	New facility				
Tollway	21	I-290/IL 53/I-90 Interchange Improvement	0	18	6	72	100
Tollway	23	I-294 Central Tri-State Reconstruction and Mobility Improvements	33	38	1	45	50
Tollway	24	I-290/I-294 Interchange Improvement	Not evaluated				

Table 13. Expressway project 2050 performance

Project submitter	RSP ID	Description	Change in congested vehicle hours traveled (VHT) in region ('000s hours daily)	Change in congested VHT in corridor (1000's hours daily)	Change in regional work trip travel time (minutes)	Change in work trip travel time in corridor (minutes)	Change in job accessibility ('000s)	Change in fatalities and serious injuries per year
IDOT	22	I-294/I-57 Interchange Addition	0.6	0.4	0.01	-0.01	0.0	1.1
IDOT	30	I-290 Eisenhower Reconstruction and Managed Lane	3.1	6.0	-0.09	-0.28	51.5	-2.3
IDOT	32	I-190 Access Improvements	-5.6	-5.5	0.00	-0.01	1.1	0.8
IDOT	33	Jane Byrne Interchange Reconstruction	Not evaluated					
IDOT	34	I-55 Add Lanes and Reconstruction	-10.6	-7.0	0.00	0.03	1.0	-4.5
IDOT	36	Western I-80 Reconstruction and Mobility Improvements	-22.8	-7.1	-0.05	-0.47	2.1	-10.0
IDOT	37	I-80 Managed Lanes	-26.9	-4.6	-0.09	-0.52	11.8	-16.7
IDOT	146	I-55 Stevenson Managed Lanes	-30.9	-11.7	-0.20	-0.56	47.8	-13.4
IDOT	157	I-57 at Eagle Lake Road	*Project is undergoing final evaluation by CMAP staff*					
IDOT	A3	I-55 from Weber Road to US 30; I-55 at Airport/Lockport Road & at IL 126	-2.8	0.3	-0.01	0.03	2.7	-1.1
IDOT	A4	I-55 - I-80 to US 52 and at IL 59; US 52 - River Road to Houbolt Road	-0.6	-0.7	0.00	-0.02	0.9	0.0
Tollway	20	Elgin O'Hare Western Access	-28.7	-23.1	-0.05	-0.21	8.6	-9.4
Tollway	21	I-290/IL 53/I-90 Interchange Improvement	6.9	-0.5	0.01	0.03	1.0	-5.5
Tollway	23	I-294 Central Tri-State Reconstruction and Mobility Improvements	-24.2	-13.9	-0.07	-0.15	16.4	-8.0
Tollway	24	I-290/I-294 Interchange Improvement	Not evaluated					

Table 14. Expressway project 2050 performance cost-effectiveness

Project submitter	RSP ID	Description	2021 capital cost $M	10 years Incremental operating Cost $M	Dollars per change in congested VHT in region ('000s)	Dollars per change in Congested VHT in corridor ('000s)	Dollars per change in regional work trip travel time $B	Dollars per change in work trip travel time in corridor $B	Dollars change in job accessible in 45 minutes ('000s)
IDOT	22	I-294/I-57 Interchange Addition	50	0.23	NB	NB	NB	5	NB
IDOT	30	I-290 Eisenhower Reconstruction and Managed Lane	3,200	5.2	NB	NB	36	11	62
IDOT	32	I-190 Access Improvements	911	1.1	163	165	NB	91	868
IDOT	33	Jane Byrne Interchange Reconstruction	1	0.3	Not evaluated				
IDOT	34	I-55 Add Lanes and Reconstruction	890	8.8	84	128	NB	NB	914
IDOT	36	Western I-80 Reconstruction and Mobility Improvements	1,131	6.4	50	160	23	2	550
IDOT	37	I-80 Managed Lanes	2,250	7.0	84	491	25	4	191
IDOT	146	I-55 Stevenson Managed Lanes	556	18.4	18	48	3	1	12
IDOT	157	I-57 at Eagle Lake Road	206	0.1	*Project is undergoing final evaluation by CMAP staff*				
IDOT	A3	I-55 from Weber Road to US 30; I-55 at Airport/Lockport Road & at IL 126	183	0.2	65	NB	18	NB	68
IDOT	A4	I-55 - I-80 to US 52 and at IL 59; US 52 River Road to Houbolt Road	199	4.0	307	277	NB	10	234
Tollway	20	Elgin O'Hare Western Access	666	21.8	23	29	13	3	78
Tollway	21	I-290/IL 53/I-90 Interchange Improvement	326	0.6	NB	717	NB	NB	343
Tollway	23	I-294 Central Tri-State Reconstruction and Mobility Improvements	659	9.0	27	47	9	4	40

Tollway	24	I-290/I-294 Interchange Improvement	388	1.3	Not evaluated

Table 15. Expressway project planning priorities

Project submitter	RSP ID	Description	Change in congested VHT for heavy trucks in region ('000s	Change in congested VHT for heavy trucks in corridor ('000s daily hours)	Freight improvement	Change in greenhouse gas emissions (metric tons/day in 2050)	Change in development pressure in conservation areas (count of new households)	Direct impact on conservation areas	Development pressure in areas at risk of groundwater desaturation (count of new	Change in impervious area (acres)	Project use by residents of EDAs (% of VMT)	Change in fine particulate Matter emissions in EDAs (g/day in 2050)	Change in access to low barrier jobs for EDAs (job count)	Economic impact due to industry clustering ($M)	Support of infill development	Benefit to key industries	Benefits to areas with industrial vacancy
IDOT	22	I-294/I-57 Interchange Addition	0.04	0.21	100	-28.1	0	Low	0	0	29	-56	0	$1.5	22	25	33
IDOT	30	I-290 Eisenhower Reconstruction and Managed Lane	-0.79	-0.01	88	-24.7	115	Medium Low	126	49	30	1,071	3,572	$97.1	64	75	75
IDOT	32	I-190 Access Improvements	-0.33	0.00	38	-54.9	145	Medium Low	170	17	8	-134	-13	$9.1	50	91	91
IDOT	33	Jane Byrne Interchange Reconstruction	Not evaluated														
IDOT	34	I-55 Add Lanes and Reconstruction	-1.47	-1.47	89	-4.4	132	Medium High	295	38	3	-569	50	$1.6	5	16	16
IDOT	36	Western I-80 Reconstruction and Mobility Improvements	-5.13	-2.43	100	-96.4	100	Medium	39	52	10	-1,278	130	$6.1	16	33	25
IDOT	37	I-80 Managed Lanes	-1.39	0.40	100	-130.3	97	Medium High	217	53	13	-954	581	$13.9	22	50	58
IDOT	146	I-55 Stevenson Managed Lanes	-1.21	-0.27	100	-34.1	171	High	316	110	23	-927	2,622	$79.0	45	66	66

Project submitter	RSP ID	Description	Change in congested VHT for heavy trucks in region ('000s	Change in congested VHT for heavy trucks in corridor ('000s daily hours)	Freight improvement	Change in greenhouse gas emissions (metric tons/day in 2050)	Change in development pressure in conservation areas (count of new households)	Direct impact on conservation areas	Development pressure in areas at risk of groundwater desaturation (count of new	Change in impervious area (acres)	Project use by residents of EDAs (% of VMT)	Change in fine particulate Matter emissions in EDAs (g/day in 2050)	Change in access to low barrier jobs for EDAs (job count)	Economic impact due to industry clustering ($M)	Support of infill development	Benefit to key industries	Benefits to areas with industrial vacancy
IDOT	157	I-57 at Eagle Lake Road	*Project is undergoing final evaluation by CMAP staff*														
IDOT	A3	I-55 from Weber Road to US 30; I-55 at Airport/Lockport Road & at IL 126	-0.50	-0.11	92	-39.2	113	Medium	130	48	6	-385	129	$1.0	16	41	50
IDOT	A4	I-55 - I-80 to US 52 and at IL 59; US 52 - River Road to Houbolt Road	-0.54	-0.21	92	-37.3	139	Low	204	11	5	-178	-33	$0.6	8	0	0
Tollway	20	Elgin O'Hare Western Access	-2.27	-1.57	77	12.7	117	High	184	157	13	300	744	$50.4	50	100	100
Tollway	21	I-290/IL 53/I-90 Interchange Improvement	-0.25	-0.05	87	-79.6	0	Low	0	0	14	-370	15	$0.3	34	58	41
Tollway	23	I-294 Central Tri-State Reconstruction and Mobility Improvements	-3.15	-1.45	100	-23.1	104	High	83	51	10	-1,845	896	$28.1	45	83	83
Tollway	24	I-290/I-294 Interchange Improvement	Not evaluated														

Arterials

Table 16. Arterial project evaluation for today's needs

Project submitter	RSP ID	Description	Structural deficiency of bridges (1000 ft2)	Pavement condition	Safety	Mobility	Reliability
CDOT	152	Elston-Armitage-Ashland-Cortland Intersection Improvement	0	41	32	77	86
CDOT	A2	South Lakefront Improvements	14	44	55	50	45
IDOT	6	IL 31/Front Street	0	33	8	42	27
IDOT	10	IL 60/IL 83	0	66	5	64	67
IDOT	11	IL 62/Algonquin Road	0	47	8	41	39
IDOT	13	IL 83/Milwaukee Avenue	0	20	18	43	49
IDOT	14	IL 131/Green Bay Road	0	14	6	38	21
IDOT	15	IL 173/Rosecrans Road	0	35	13	45	42
IDOT	89	North DuSable Lake Shore Drive Improvements	16	44	27	79	82
IDOT	109	IL 43/Harlem Avenue	0	51	28	66	38
IDOT	110	IL 47	2	28	11	44	31
IDOT	111	IL 83/Kingery Highway	0	18	15	66	68
IDOT	112	US 12/US 20	0	39	79	80	92
IDOT	113	US 20/Lake Street	59	38	41	27	21
IDOT	114	US 45/IL 83/Old Half Day Road	0	22	13	60	39
IDOT	151	CREATE - Central Avenue	0	42	18	75	85
IDOT	158	US 6	0	36	10	33	30
IDOT	159	US 30	0	45	9	45	49
IDOT	160	US 45 and Milburn By-Pass	0	28	3	24	18
IDOT	161	IL 7/143rd Street	0	20	4	50	30
IDOT	162	IL 47	0	33	7	40	26
IDOT	163	IL 56	0	43	7	41	41
IDOT	164	IL 60	0	51	9	38	45
Will	53	Caton Farm-Bruce Road Corridor	0	27	25	53	54
Will	55	CH 74/Laraway Road	0	20	20	39	26

Table 17. Arterial project planning priorities

Project submitter	RSP ID	Description	GIV impact index	Expected traffic growth (percent)	Project use by residents of EDAs (percent VMT)	Economic impact due to industry clustering	Benefits to key industries	Benefits to areas with industrial vacancy	Freight improvement
CDOT	152	Elston-Armitage-Ashland-Cortland Intersection Improvement	58	8	27	45	95	87	5
CDOT	A2	South Lakefront Improvements	8	14	35	8	87	91	5
IDOT	6	IL 31/Front Street	83	10	3	5	12	29	33
IDOT	10	IL 60/IL 83	54	10	8	6	20	16	27
IDOT	11	IL 62/Algonquin Road	29	10	12	3	66	70	34
IDOT	13	IL 83/Milwaukee Avenue	33	17	8	6	25	25	28
IDOT	14	IL 131/Green Bay Road	16	19	19	1	33	0	28
IDOT	15	IL 173/Rosecrans Road	79	28	7	2	58	54	28
IDOT	89	North DuSable Lake Shore Drive Improvements	50	N/A	21	58	83	83	3
IDOT	109	IL 43/Harlem Avenue	45	13	33	44	79	75	77
IDOT	110	IL 47	91	33	3	3	41	41	27
IDOT	111	IL 83/Kingery Highway	100	5	7	59	100	100	37
IDOT	112	US 12/US 20	25	33	41	4	54	58	67
IDOT	113	US 20/Lake Street	95	16	13	10	91	95	38
IDOT	114	US 45/IL 83/Old Half Day Road	70	11	10	22	62	45	27
IDOT	151	CREATE - Central Avenue	12	30	35	18	50	62	25
IDOT	158	US 6	41	75	15	12	0	8	67
IDOT	159	US 30	37	84	7	3	16	33	29
IDOT	160	US 45 and Milburn By-Pass	0	25	3	0	29	4	26
IDOT	161	IL 7/143rd Street	4	110	6	13	4	12	1
IDOT	162	IL 47	87	51	2	0	70	66	29
IDOT	163	IL 56	62	12	14	6	75	79	27
IDOT	164	IL 60	75	15	10	6	45	37	3
Will	53	Caton Farm-Bruce Road Corridor	20	58	12	6	8	20	28
Will	55	CH 74/Laraway Road	66	38	11	7	37	50	27

Project descriptions

Projects are sorted first by Transit, Expressway, and Arterial and then by project submitter and RSP ID number.

Transit

West Loop Transportation Center Phase I (CDOT, RSP ID# 85)

Project description

This project would improve the existing facilities east of and within Union Station, which includes increasing the capacity within the existing footprint of the station by creating new platforms and tracks and by repurposing currently inactive tracks and platforms. It also expands the passenger-carrying capacity of existing platforms, reconfiguring the station's internal spaces to increase passenger capacity and creates the capability to through-route some intercity trains.

West Loop Transportation Center Phase II (CDOT, RSP ID# 88)

Project description

This project would construct the West Loop Subway component of the West Loop Transportation Center. A new underground transitway along Clinton and/or Canal streets with key transfer stations located between the Eisenhower Expressway and Lake Street in Chicago. The subway may also include multiple levels or alignments within the West Loop area to accommodate additional tracks and platforms for inter-city and or commuter trains.

South Lakefront-Museum Campus Access Improvement (CDOT, RSP ID# 104)

Project description

This project would add new access points and stations to the existing McCormick Place Busway, transforming it into the South Lakefront Busway. The project also considers alternatives for linking Museum Campus institutions with each other as well as CTA's Red and Green Lines, the proposed South Lakefront Busway, and the rapidly redeveloping Cermak Road corridor extending from McCormick Place to Motor Row and Chinatown.

Ashland-Ogden Metra Infill Station (CDOT, RSP ID# 153)

Project description

This will construct a new Metra station between Ashland Ave. and Ogden Ave. serving UP-W, MD-N, MD-W, NCS and potentially Amtrak.

O'Hare Airport Express Train (CDOT, RSP ID# A1)

Project description

Express train service between O'Hare Airport and the City of Chicago's central business district. As currently envisioned, this would be constructed and operated by a private entity but the exact scope of service or the alignment have not been determined.

Red Line Extension (South) (CTA, RSP ID# 57)

Project description

The CTA Red Line Extension (RLE) Project will extend the Red Line south from the 95th Street Terminal to the vicinity of 132nd Street in the City of Chicago in Cook County, Illinois. The proposed 5.6-mile heavy rail extension will include four new stations near 103rd Street, 111th Street, Michigan Avenue, and 130th Street. Multimodal connections at each station would include bus, bike, pedestrian, and park & ride facilities. The Project would also include a new railyard and shop near 120th Street. The RLE Project is a major component of CTA's Red Ahead program, a comprehensive initiative for maintaining, modernizing, and expanding Chicago's most traveled rail line.

Red Purple Modernization Phase One (CTA, RSP ID# 58)

Project description

The RPM Phase One project will expand capacity along the CTA's Red and Purple heavy rail lines. The project includes several elements that will allow CTA to expand service in the corridor. The Lawrence to Bryn Mawr Modernization (LBMM) will modernize, expand, and add ADA accessibility at four Red Line stations (Lawrence, Argyle, Berwyn, and Bryn Mawr) and will reconstruct of 6 miles of track and structure from Leland Avenue on the south to near Ardmore Avenue on the north. The Red-Purple Bypass (RPB) will construct of a grade-separated bypass for the Brown Line at Clark Junction, just north of the Belmont station, removing the largest physical capacity constraint in the RPM corridor, where three separate services on six tracks merge onto four tracks. This work will also realign and replace approximately 1.4 miles of associated mainline (Red and Purple line) tracks from Belmont station on the south to the stretch of track between Newport and Cornelia Avenues on the north, increasing speed, reliability, and capacity in the project corridor. Work also includes a new signal system (Corridor Signal Improvement) from Belmont to Howard, covering over 23 miles of track, allowing for increased throughput of trains, and increasing reliability of operation, as well as a pre-stage work and upgrades to the Broadway Substation.

Red Purple Modernization Future Phases (CTA, RSP ID# 58)

Project description

This project would continue the modernization and expansion of the Red and Purple Lines from Addison to Sheridan and from Thorndale to Linden. Work would include the reconstruction of track, structures, and viaducts, expanded stations and platforms, and adding ADA accessibility. This phase may also include addressing capacity constraints at Howard Yard, construction of infill power substations (based on power needs), and other related infrastructure improvements in this corridor. The project will seek funding from the federal Core Capacity program.

Blue Line Forest Park Branch Reconstruction (CTA, RSP ID# 93)

Project description

This project would reconstruct the Forest Park Branch of the Blue Line. It includes full modernization of existing infrastructure, rehabilitation of all track and ballast, ADA accessibility and modernization of stations, upgrade to power systems and other upgrades for future capacity increases. The project will reconstruct and reconfigure the Forest Park Terminal and Yard. The Forest Park Branch Program will be delivered in phases. The first phase is funded ($360,992,660) and includes track work (subway portal to IMD), Racine station and Hermitage Substation

Ashland Ave BRT (CTA, RSP ID# 106)

Project description

This project would construct a Bus Rapid Transit (BRT) line in the Ashland Avenue corridor between Irving Park Rd and 95th Street.

South Halsted BRT (CTA, RSP ID# 108)

Project description

This project would add Bus Rapid Transit (BRT) service or other bus improvements to the Halsted corridor between the 79th Street Red Line Station and the Harvey Transportation Center.

Blue Line Capacity Project (CTA, RSP ID# 147)

Project description

Results of a comprehensive planning study will be used to recommend a package of capacity improvements for CTA's Blue Line from Forest Park Terminal to O'Hare Terminal. This package will be intended to meet Core Capacity CIG requirements. Work may include rehabilitation of stations and platforms to allow for longer trains and make ADA accessibility upgrades,

identification of turnback locations or storage tracks to allow for feeder trains, modifications of track geometry, upgrades to power systems (third rail, substations, tie houses, auxiliary negative return), rail yard and shop reconfiguration and reconstruction, modifications to signal systems and other technology enhancements to improve operations may be part of this package. Upgrades to existing infrastructure based on current condition may be recommended, if required, even if it does not meet Core Capacity requirements

Brown Line Core Capacity (CTA, RSP ID# 165)

Project description

The project would address capacity issues on the Brown Line that have emerged since the Brown Line Capacity Expansion project was completed in 2009. It would add capacity through the following items: reconstruction of yard and shop, reconfiguration/optimization of Kimball terminal, construction of new turnback track west of Western Brown Line station, reconstruction of tight radius curves, upgrade to signal system, upgrade to power. Additional SGR projects could be coupled with this project (but are not included in this estimate and are not eligible for federal 5309 Core Capacity funds).

BNSF Extension-Oswego/Plano (Kendall County, RSP ID# 71)

Project description

This project would extend Metra BNSF service from its current terminus in Aurora to Oswego, in Kendall County. Preliminary engineering and Environmental Analysis have been initiated. It has been exempted from the New Starts evaluation process by federal action. Kendall County is currently outside of the RTA service area. The project involves an extension outside the RTA service area, so project financing requires special attention. Metra has identified Kendall County as the sponsor for this project. The total cost is dependent on the final stop and a number of other variables to be determined as the engineering continues.

UP Northwest Extension (Metra, RSP ID# 66)

Project description

This project would construct an extension of the Union Pacific Northwest line to Johnsburg along with making signal and track improvements and adding two additional infill stations at Prairie Grove and East Woodstock and new coach yards in Woodstock and Johnsburg

SouthWest Service Improvements / 75th St CIP Elements (Metra, RSP ID# 67)

Project description

This project, which is part of the CREATE 75th Steet Corridor Improvement Project, would allow the SouthWest Service to move from Union Station to the LaSalle Street station and therby increase frequency of service on the SouthWest Service line. The project would also construct a new track that improves reliability and reduces operational conflicts.

UP North Improvements (Metra, RSP ID# 68)

Project description

This project would install additional crossovers and track improvements, construct an outlying coach yard, upgrade existing stations for increased capacity, construct a new station at Peterson Ave, and make improvements to the existing UP-N Hubbard Woods station.

UP West Improvements (Metra, RSP ID# 69)

Project description

This project would construct a third mainline track for the segments currently double tracked along with upgrading signal system, new crossovers, and a variety of safety enhancements.

Rock Island Improvements (Metra, RSP ID# 70)

Project description

This project would construct a third mainline track to the nine-mile double-track portion between Gresham Junction and a point north of 16th Street Junction. The project builds on the CREATE P12 Project, a rail flyover which eliminates the conflict between Metra trains and freight and Amtrak trains, new bi-directional signals, centralized traffic control to integrate with existing RID operations, several new or rehabilitated bridges over city streets, and an expanded and modernized 47th Street Yard

BNSF Improvements (Metra, RSP ID# 72)

Project description

This project would make track, signal, and other improvements to the BNSF Line to support growth in ridership and upgrades to the capacity of the line.

Milwaukee District West Improvements (Metra, RSP ID# 79)

Project description

This project would make track, signal, and other improvements to the Milwaukee District West Line to support increased capacity.

A-2 Crossing (Metra, RSP ID# 98)

Project description

This project would reconstruct build a flyover to replace the A2 Crossing (Western Ave and Kinzie St) between Union Pacific and Milwaukee District tracks. The rebuild flyover will help reduce conflicts between Milwaukee District North, Milwaukee District West, North Central Service and Union Pacific West trains and provide a travel time savings to passengers

Metra Milwaukee Corridor Improvements (Metra, RSP ID# 156)

Project description

This project would provide a high-quality direct transit link between downtown Chicago and the region's busiest airport. This would involve portions of new dedicated track to best serve the growth in the express and local markets. Metra is currently studying this project to further refine scope, costs, and benefits.

Pulse-ART Expansion (Pace, RSP ID# 102)

Project description

This project would expand the Pulse Network (Arterial Rapid Transit) along 95th Street using the current Route 381 alignment, along Harlem Avenue using the current Route 307 alignment, and along Cermak Road using the current Route 322 alignment. Improvements will include new Pulse stations, vehicles, transit vehicle signal priority improvements, and upgraded frequency over the existing service. Project definition is complete for the 95th Street service and environmental review and advanced conceptual design is expected to start in Q4 of 2021. Two corridor planning studies have been completed to date for the Harlem Avenue service

South Halsted Bus Enhancements (Pace, RSP ID# 154)

Project description

This project would expand the Pulse Network (Arterial Rapid Transit). Pace and CTA are coordinating on the South Halsted Bus Corridor Enhancement project, an 11-mile corridor along South Halsted Street between 79th Street in Chicago and the Pace Harvey Transportation Center and includes both 79th and 95th Streets between Halsted Street and the CTA Red Line. This corridor is shared by CTA and Pace bus service between 95th Street and 127th Street in Chicago, operated solely by CTA service north of 95th Street and operated solely by Pace south of 127th Street. Project improvements include the construction of the Pulse Halsted Line, CTA bus station improvements north of 95th Street, queue jumps and bus-only lane segments, CNG-powered Pulse buses, and TSP within the City of Chicago. TSP located in the suburban intersections is being pursued separately through an RTA regional TSP grant.

I-294 Tri-State Express Bus Stations (Pace, RSP ID# 155)

Project description

This will construct two new in-line bus rapid transit (BRT) stations along the 1-294 Tri-State Tollway at: 1.) O'Hare Oasis – in Schiller Park, south of Irving Park Road and east of Mannheim; and 2.) Cermak – in Oak Brook, at the former toll plaza facility just north of Cermak Road. Improvements at these stations will include: new bus shelters; platforms; transfer opportunities to local Pace fixed route services; passenger amenities; new pedestrian infrastructure and ADA improvements; and, connections to new Pace Express service proposed along the Tri-State corridor. At Cermak, additional improvements include: bus-only ramps; platforms; a park-n-ride lot; potential connections with future Pulse Cermak and/or Roosevelt Lines; and, a pedestrian bridge spanning the tollway. At O'Hare Oasis, buses would use the existing ramps and passengers may benefit from a pedestrian bridge planned by the Tollway. Note - Total project cost on this sheet includes additional facility upgrades currently being considered in this corridor; total costs are being finalized as we continue to coordinate with the tollway on this project and reviewed the proposed station designs.

Expressway

I-290 Managed Lane (IDOT, RSP ID# 30)

Project description

This project would reconstruct and modernize the I-290 (Eisenhower Expressway) from the I-88 interchange to Racine Avenue. The project includes an express toll lane from Mannheim Road to Racine Avenue and coordination with the Forest Park Blue Line reconstruction project.

I-190 Access Improvements (IDOT, RSP ID# 32)

Project description

This project consists of reconfiguring arterial access to I-190 and O'Hare International Airport to improve mobility and reduce collisions, as well as ultimately reconstructing and adding capacity to mainline I-190.

Jane Byrne Interchange (IDOT, RSP ID# 33)

Project description

This project would reconstruct and modernize the Jane Byrne Interchange (interchange of I-90/I-94 with I-290). While it is mostly a reconstruction project, new capacity will be added in the form of an additional lane on the east-north and north-west ramps, as well as three new flyovers. A new through-lane will also be added on I-90/I-94 through the interchange.

I-55 Add Lanes and Reconstruction (IDOT, RSP ID# 34)

Project description

This project would reconstruct I-55, add a lane in each direction, and improve interchanges through western Will County, from the I-80 interchange south to Coal City Road.

I-57 Add Lanes (IDOT, RSP ID# 35)

Project description

This project would reconstruct I-57 from I-80 to Kankakee County border with interchange reconstruction.

I-80 Add / Managed Lanes (IDOT, RSP ID# 36)

Project description

This project would add a lane to I-80 through southwestern Cook and Will counties, from Ridge Road to US-30.

I-80 Managed Lanes (IDOT, RSP ID# 37)

Project description

This project would add a managed lane to the existing six lane cross section between US 30 and I-294 by adding a lane in each direction.

I-94 Bishop Ford Expressway (IDOT, RSP ID# 135)

Project description

This project would reconstruct the Bishop Ford Expressway (I-94) from I-57 to US Route 6 and includes reconstruction interchanges, the addition of bus on shoulders implementation, and the addition of auxilliary lanes from I-57 to Stoney Island.

I-90/1-94 Kennedy and Dan Ryan Expressways (IDOT, RSP ID# 136)

Project description

This project would reconstruct the Kennedy and Dan Ryan Expressways (I-90/I-94) from Hubbard Street to 31st Street and includes road widening for managed lanes, Hubbards Cave reconstruction and widening, bridge replacement and iterchange reconstruction.

I-55 Stevenson Expressway (IDOT, RSP ID# 137)

Project description

This project on I-55 would reconstruct all general purpose lanes from Lake Shore Drive to I-80, conduct pavement rehabilitation on managed lanes, add lanes from Lake Shore Drive to I-90/I-94, add an auxiliary lane on westbond from I355 to Illinois Route 53, reconstruct I-90 and I-294 interchanges, allow buses on shoulders south of I-355 to Illinois Route 126 and conduct preservation activities on various other interchanges.

I-90 Kennedy Expressway (IDOT, RSP ID# 138)

Project description

This project on I-90 from Jane Adams tollway to I-94 merge would add managed lanes, reconstruct the roadway, conduct interchange reconstruction and preservation, and bridge reconstruction.

I-94 Edens Expressway (IDOT, RSP ID# 139)

Project description

This project on I-94 from tollway spur to Lawrence Avenue would reconstruct the roadway, widen the road to convert from bus on shoulder to managed lanes, bridge reconstruction and replacement and service interchange reconstruction and preservation.

I-90/I-94 Kennedy Expressway (IDOT, RSP ID# 140)

Project description

This project on I-90/I-94 from Edens Junction to Hubbard Street would convert express lanes to managed lanes, reconstruct the roadway and service interchanges.

I-290/IL-53 (IDOT, RSP ID# 141)

Project description

This project would reconstruct I-290 and IL 53 from I-88 to Lake Cook Road and includes widening for auxiliary lanes southbound from IL-390 to I-355 and IL-56 to S York Street, interchange reconstruction and bridge reconstruction.

I-57 (IDOT, RSP ID# 142)

Project description

This project would reconstruct I-57 from I-94 to I-80 with the addition of lanes from 95th Street to 111th Street, bus on shoulder implementation and interchange reconstruction.

I-55 Stevenson Managed Lane (IDOT, RSP ID# 146)

Project description

The project is for the addition of managed lanes within the existing median of I-55 between I-90/I-94 and I-355. The corridor is anticipated to include the practice of Intelligent Transportation Systems (ITS) which would support congestion management strategies.

I-57 at Eagle Lake Road (IDOT, RSP ID# 157)

Project description

This project will construct a new full interchange at IL 57 and Eagle Lake Rd to improve accessibility.

I-55 from Weber Road to US 30; I-55 at Airport/Lockport Rd & at IL 126 (IDOT, RSP ID# A3)

Project description

The purpose of this project is to provide improved access to I-55 by reconstructing and reconfiguring the interchange at IL 126 (partial interchange to full), constructing a new interchange at Airport Rd/Lockport St, and making ancillary improvements. The IL 126 and Airport/Lockport interchanges are separated by approximately two miles.

I-55 - I-80 to US 52 (Jefferson St) and at IL 59; US 52 Jefferson St - River Rd to Houbolt Rd (IDOT, RSP ID# A4)

Project description

The purpose of this project is to improve regional mobility and provide better local interstate access. The I-55 from I-80 to US 52 portion involves converting a partial interchange to a full access interchange at I-55 and IL 59 -- including a new structure over I-55 -- and adding auxiliary lanes from IL 59 to US 52. The US 52 from River Rd to Houbolt Rd portion includes reconstruction, bridge widening and repair, widening pavement, and adding turn and through lanes.

Elgin O'Hare Western Access (Tollway, RSP ID# 20)

Project description

This project would provide a new, limited-access facility to reduce congestion and improve access to the airport. The project includes three main components: reconstructing and widening the existing Elgin O'Hare Expressway (Illinois Route 390), extending the expressway east to O'Hare International Airport, and adding an expressway around the western side of O'Hare from I-90 to I-294 (the western bypass). All three components would be tolled.

I-290/IL 53 Interchange Improvement (Tollway, RSP ID# 21)

Project description

This project would reconfigure the existing system interchange to alleviate the bottleneck between I-290/IL-53 and I-90.

I-294 Interchange Addition (IDOT, RSP ID# 22)

Project description

This project would construct a full interchange between I-294 and I-57, improving accessibility to and from the south suburbs and improving north-south regional travel. The project has been divided into two phases. The first phase involves construction of new ramps to connect northbound I-57 to northbound I-294 and southbound I-294 to southbound I-57, as well as an entrance and exit ramp from I-294 to 147th Street. Phase 2 involves the remaining interchange connections.

I-294 Central Tri-State Mobility Improvements (Tollway, RSP ID# 23)

Project description

This project would reconstruct and improve the Central Tri-State from Balmoral Avenue to 95th Street. Proposed aspects include updated and upgraded pavement, integrated flex lanes, implementation of SmartRoad technology, widening where needed, reconfiguration and improvements to the interstate interchanges, potential new local access interchanges, noise remediation and stormwater improvements, truck and frieght accomodations and bringing the corridor into a state of good repair.

I-290/I-294 Interchange Improvement (Tollway, RSP ID# 24)

Project description

This project would reconfigure the existing system interchange between I-290 and I-294.

Arterial

Elston-Armitage-Ashland-Cortland Intersection Improvement (CDOT, RSP ID# 152)

Project description

This project will realign Elston Avenue over to the Mendell Street right-of-way. This will increase intersection spacing to improve traffic safety and capacity for all modes. The project will relocate one existing railroad viaduct over Elston and replace and expand two existing railroad viaducts over Armitage. It will also build an Armitage Ave bridge over North Branch to strengthen the street grid and improve traffic safety and circulation in this congested area.

South Lakefront Improvements (CDOT, RSP ID# A2)

Project description

The project would involve closing certain roadway segments and improving others, including adding an additional southbound travel lane on South DuSable Lake Shore Drive from 57th Drive to Hayes Drive. Specifically, the project will remove sections of Cornell Drive, Midway Plaisance, and Marquette Drive while adding capacity on Stony Island Avenue, DuSable Lake Shore Drive, and small remaining sections of Cornell and Midway. The project's bicycle and pedestrian improvements include new and improved trails, pedestrian refuge islands and curb extensions, and five new underpasses. Transit improvements include bus stop relocation/consolidation, bus bulbs, and traffic signal modernization to allow for future implementation of interconnected signals or transit signal priority.

IL-31 Front Street (IDOT, RSP ID# 6)

Project description

This project would add lanes to IL-31/Front St from IL-120 to IL-176.

IL-60 (IDOT, RSP ID# 10)

Project description

This project would add lanes to IL-60 from IL-176 to the CN Railroad tracks and would grade separate IL-60 from the railroad tracks.

IL-62/Algonquin Road (IDOT, RSP ID# 11)

Project description

This project would add lanes to IL-62/Algonquin Road from IL-25 to IL-68.

IL-83/Barron Boulevard (IDOT, RSP ID# 13)

Project description

This project would add lanes to IL-83/Barron Boulevard from Petite Lake Road to IL-120/Belvidere Road.

IL-131/Greenbay Road (IDOT, RSP ID# 14)

Project description

This project would add lanes to IL-131/Greenbay Rd from Russell Road to Sunset Avenue.

IL-173/Rosecrans Road (IDOT, RSP ID# 15)

Project description

This project would add lanes to IL-173/Rosecrans Road from IL-59 to US-41/Skokie Highway.

North DuSable Lake Shore Drive Reconstruction (IDOT, RSP ID# 89)

Project description

This project would reconstruct US-14/DuSable Lake Shore Drive from Hollywood Ave to Grand Ave. Besides reconstruction work the project will also try to improve safety, improve mobility of people, and improve accessibility to and from the adjacent communities for all users. In addition to a high level of auto traffic, this corridor is also a strong high-ridership bus transit corridor, and provides a key travel facility for bicycles and pedestrians. Due to the physically constrained nature of the corridor, providing quality high-capacity and high-quality transit options will be vital to ensuring that the corridor can accommodate current and growing travel demand along the corridor

IL-43/Harlem Avenue (IDOT, RSP ID# 109)

Project description

This project would grade separate IL-43 and the BRC Railroad tracks at 65th Street.

IL-47 (IDOT, RSP ID# 110)

Project description

This project would add lanes to IL 47 from north of Charles Road to US 14 with intersection improvements and replacement of the UP Railroad bridge.

IL-83/Kingery Highway (IDOT, RSP ID# 111)

Project description

This project would add lanes to IL 83 from 31st Street to 55th Street and from south of 63rd Street to south of Central Avenue.

US-12/95th Street (IDOT, RSP ID# 112)

Project description

This project would improve the intersection of US 12/95th Street and Stony Island Avenue and involves bridge and railroad relocation.

US-20/Lake Street (IDOT, RSP ID# 113)

Project description

This project would reconstruct US 20/Lake Street from west of Randall Road to east of Shales Pkwy. The project involves bridge replacements, safety improvements, and intersection improvements.

US-45/Olde Half Day Road (IDOT, RSP ID# 114)

Project description

This project would add lanes to US 45/Olde Half Day Road from IL 60/Townline Road to IL 22/Half Day Road.

Central Avenue (IDOT, RSP ID# 151)

Project description

This project would grade separate Central Avenue and the Belt Railway of Chicago tracks at 54th Street. The project is GS2 in the CREATE program.

US 6 from I-55 to US 52 (IDOT, RSP ID# 158)

Project description

This project will increase the capacity of US 6 from I-55 to US 52.

US 30 from IL 47 to Albright Road (IDOT, RSP ID# 159)

Project description

This project will add lanes and reconstruct existing lanes on US 30 from IL 47 to Albright Rd. The bridge will also be replaced.

US 45 and Milburn By-Pass from IL 173 to IL 132 (IDOT, RSP ID# 160)

Project description

This project will add lanes and reconstruct existing lanes on US 45 from north of Milburn Bypass to north of IL 173.

IL 7/I43rd Street from Will-Cook Line to IL 7/Southwest Highway (IDOT, RSP ID# 161)

Project description

This project will reconstruct IL 7 (143rd Street) from Will-Cook Line to IL 7 (Southwest Highway).

IL 47 from south of I-90 to south of Old Plank Road (IDOT, RSP ID# 162)

Project description

This project will add lanes and reconstruct existing lanes on IL 47 from south of 1-90 to south of Plank Road.

IL 56 from Kirk Road to IL 59 (IDOT, RSP ID# 163)

Project description

This project will add lanes and reconstruct existing lanes on IL 56 (Butterfield Road) from IL 25 to IL 59 Joliet Rd).

IL 60 from IL 120 to IL 176 (IDOT, RSP ID# 164)

Project description

This project will add lanes and reconstruct existing lanes on IL 60 from IL 120 (Belvidere Rd) to IL 176 (Maple Ave).

Caton Farm-Bruce Road Corridor (Will County, RSP ID# 53)

Project description

This project consists of a new east/west corridor within north central Will County. The corridor consists of upgrading of the existing roadway system and new roadway on new alignment. Included in the project is a new crossing of the Des Plaines River Valley, over a dozen new and upgraded signals, and a number of new structures.

Laraway Road (Will County, RSP ID# 55)

Project description

This project would add lanes to Laraway Road from US 52 to Harlem Avenue.

Appendix A. Evaluation measure details

Addressing today's needs – Transit

Asset condition

Transit asset condition is measured using FTA's asset condition scale (Table A1). The score for a project is the value-weighted average for the assets that will be improved or replaced as part of the project. Projects that do not have a state of good repair element receive a score of "N/A." Data comes from transit agencies.

Table A1. FTA condition scale

Rating	Condition	Description
Excellent	4.8—5.0	No visible defects, near-new condition
Good	4.0—4.7	Some slight defective or deteriorated components
Adequate	3.0—3.9	Moderately defective or deteriorated components
Marginal	2.0—2.9	Defective or deteriorated components in need of replacement
Poor	1.0—1.9	Seriously damaged components in need of immediate repair

Capacity constraint

There are several ways to measure capacity, including line capacity, signal capacity, electrical system capacity, etc. While all of these measures are important, passenger capacity utilization is the most straightforward to estimate and aligns with FTA Core Capacity requirements. Capacity is only considered for rail projects in the context of ON TO 2050. Bus route capacity tends to be more limited by roadway capacity, which is addressed through roadway improvements projects such as adding lanes or through operational treatments such as transit signal priority. Bus route capacity is therefore not a driver of major transit capital project selection.

FTA considers commuter rail to be over capacity when cars are 95 percent full. Consequently, rail lines that frequently have trains over 95 percent full are considered to have the highest need for capacity improvements. In the table below, for example, the BNSF has six trains a day with over 95 percent capacity. Metra lines were ranked based on relative capacity need, based on the 2019 information below.

Figure A1. Metra capacity utilization

Capacity Utilization of Peak Period/Peak Direction Trains

	% CAP UTIL		Distribution of December 2019 Trains by Capacity Utilization					
	2018	2019	0-49.9	50-74.9	75-89.9	90-94.9	95+	TOTAL
BNSF	73.1%	65.9%	11	27	12	0	6	56
Elec-Main	48.8%	46.2%	26	16	0	0	0	42
Elec-Blue Island	30.4%	23.3%	13	0	0	0	0	13
Elec-So. Chicago	30.8%	27.8%	13	0	0	0	0	13
Heritage	56.0%	52.3%	3	3	0	0	0	6
Milw-N	63.0%	56.0%	10	14	2	0	0	26
Milw-W	60.6%	54.1%	10	16	1	0	0	27
NCS	54.8%	51.7%	5	4	0	0	0	9
Rock Island	56.6%	48.2%	19	16	1	0	0	36
SWS	65.2%	56.2%	2	9	0	0	0	11
UP-N	80.6%	76.8%	4	7	15	1	3	30
UP-NW	78.6%	71.5%	2	16	10	5	0	33
UP-W	68.8%	61.3%	8	12	7	0	0	27
SYSTEM*	64.9%	58.5%	126	140	48	6	9	329
% OF TOTAL			38.3%	42.6%	14.6%	1.8%	2.7%	100%

Source: Capacity Utilization of Trains: Commuter Rail System, December 2019.

Heavy rail utilization is measured by the FTA based on usable space per passenger. Table 21 of the CTA's System Wide Rail Utilization and Capacity Analysis[4] provides the number of passengers relative to vehicle capacity (which is similar to usable space per passenger) at each hour of the day. The most congested period for each train was used to rank the magnitude of capacity constraint on CTA rail.

[4] Chicago Transit Authority, "System Wide Rail Capacity Study," 2017, https://www.transitchicago.com/assets/1/6/RP_CDMSMITH_RCM_Task2AExecutiveSummary_20170628_FINAL.pdf.

Figure A2. Chicago Transit Authority rail capacity utilization

	HOUR																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Blue Line																							
To O'Hare	0.16	0.16	0.24	0.19	0.33	0.43	0.55	0.39	0.23	0.31	0.35	0.44	0.48	0.58	0.59	0.69	0.65	0.61	0.49	0.44	0.33	0.44	0.35
To Forest Park	0.12	0.17	0.20	0.28	0.50	**0.89**	**0.99**	**0.98**	0.71	0.57	0.52	0.50	0.50	0.49	0.35	0.47	0.46	0.34	0.34	0.30	0.26	0.41	0.25
Red Line																							
To Howard	0.26	0.16	0.23	0.43	0.38	0.55	0.79	0.65	0.38	0.41	0.46	0.50	0.56	0.73	0.69	**0.92**	**0.88**	**0.91**	0.62	0.59	0.47	0.38	0.43
To 95th	0.18	0.09	0.10	0.32	0.32	0.73	**0.94**	**0.90**	0.72	0.52	0.50	0.53	0.51	0.54	0.68	**0.99**	0.77	0.48	0.42	0.41	0.43	0.32	0.36
Brown Line																							
To Kimball	0.15	0.00	0.00	0.11	0.08	0.15	0.30	0.27	0.18	0.24	0.40	0.49	0.64	0.56	0.48	0.68	**1.10**	0.71	0.41	0.35	0.52	0.38	0.42
To Loop	0.02	0.00	0.00	0.10	0.35	**1.12**	**1.03**	0.57	0.36	0.53	0.45	0.43	0.49	0.20	0.25	0.18	0.32	0.20	0.15	0.21	0.22	0.22	0.12
Purple Line																							
To Linden	0.00	0.00	0.00	0.00	0.30	0.32	0.40	0.43	0.20	0.15	0.27	0.22	0.29	0.21	0.37	**1.17**	**1.16**	0.68	0.40	0.17	0.33	0.00	0.18
To Howard/Loop	0.00	0.00	0.00	0.00	0.37	0.57	**1.06**	0.45	0.14	0.12	0.19	0.19	0.22	0.36	0.39	0.37	0.48	0.24	0.17	0.15	0.20	0.16	0.13
Green Line																							
To Harlem	0.00	0.00	0.00	0.12	0.33	0.45	0.82	0.74	0.47	0.42	0.46	0.53	0.58	0.64	0.68	0.84	0.83	0.56	0.48	0.40	0.42	0.35	0.27
To 63rd	0.03	0.00	0.00	0.09	0.21	0.37	0.66	0.59	0.54	0.39	0.37	0.40	0.46	0.30	0.36	0.75	0.43	0.37	0.30	0.30	0.18	0.26	0.15
Orange Line																							
To Loop	0.02	0.00	0.00	0.35	0.40	0.58	**0.87**	0.65	0.38	0.52	0.43	0.46	0.54	0.23	0.28	0.17	0.16	0.14	0.12	0.14	0.18	0.11	0.06
To Midway	0.20	0.00	0.00	0.29	0.32	0.65	0.53	0.39	0.18	0.22	0.34	0.46	0.58	0.46	0.60	0.85	0.71	0.53	0.45	0.60	0.66	0.59	0.41
Pink Line																							
To Loop	0.00	0.00	0.00	0.20	0.47	0.76	**0.89**	0.73	0.46	0.47	0.46	0.46	0.48	0.48	0.65	0.57	0.38	0.23	0.22	0.11	0.11	0.13	0.09
To 54th/Cermak	0.00	0.00	0.00	0.10	0.13	0.24	0.57	0.44	0.29	0.23	0.32	0.43	0.41	0.57	0.68	0.71	0.67	0.53	0.36	0.33	0.34	0.34	0.31
Yellow Line																							
To Dempster	0.00	0.00	0.00	0.08	0.04	0.13	0.19	0.33	0.22	0.22	0.20	0.27	0.24	0.18	0.24	0.39	0.63	0.65	0.44	0.33	0.33	0.41	0.26
To Howard	0.00	0.00	0.00	0.00	0.18	0.35	0.47	0.40	0.21	0.17	0.19	0.20	0.19	0.12	0.16	0.28	0.34	0.23	0.12	0.11	0.12	0.09	0.01

Source: Chicago Transit Authority System Wide Rail Utilization and Capacity Analysis, November 2016.

Note that projects are matched to the utilization of the line with the maximum capacity constraint. For example moving the Metra SouthWest Service (SWS) to LaSalle Street station would impact all trains on the congested south concourse of Union Station. While this project is on the SWS infrastructure, it would receive a higher value for its impact on the capacity of the BNSF.

In the project evaluation, the capacity utilization on the line is provided both in raw form (ratio of passenger utilization to capacity for CTA and the number of trains per day with more than 95 percent of seats occupied for Metra) as well as in rescaled form, as follows. The data available for each mode was used to set relative need on a 10-point scale, with “10” having the highest passenger capacity utilization and “0” having no capacity issues. Most lines with current capacity issues would be scored between 1 and 9 as shown in the table below. No line received a score of 10, in order to accommodate future ridership growth or revised data from the operators. Rail lines not listed would receive a score of 0, indicating that they do not have passenger utilization issues.

Table A2. Need scoring for capacity utilization

	Metra		CTA	
Score	**# Trains with >95% seats occupied per day**	**Lines**	**Passenger Utilization Ratio**	**Lines**
10	10		1.20	
9	9		1.15	Purple
8	8		1.10	Brown
7	7		1.05	
6	6	BNSF	1.00	Red, Blue
5	5		0.95	
4	4		0.90	
3	3	UP-N	0.85	Pink, Orange
2	2		0.80	Green
1	1		0.75	
0	0	All other	<0.75	Yellow

Source: Chicago Metropolitan Agency for Planning analysis based upon Metra and CTA rail capacity utilization data.

Reliability

For Metra rail, the latest published on-time report is used. For CTA rail, agency information on headway adherence is used. Pace Suburban Bus also provided on-time route statistics which were referenced for locations where projects were proposed.

Addressing existing ADA deficiency

This measure indicates if an existing ADA deficiency is significantly reduced or resolved as a result of a project. The measure is either "Yes" or "No." For example, a reconstruction project that rebuilt a rail line and several stations would be rated as "Yes," because ADA non-compliant stations would be upgraded during the reconstruction with improvements such elevators. Extension projects and new service do not address an existing deficiency regardless of their design and are categorized as "No." BRT and ART projects that significantly improve station boarding and information access are rates as "Yes."

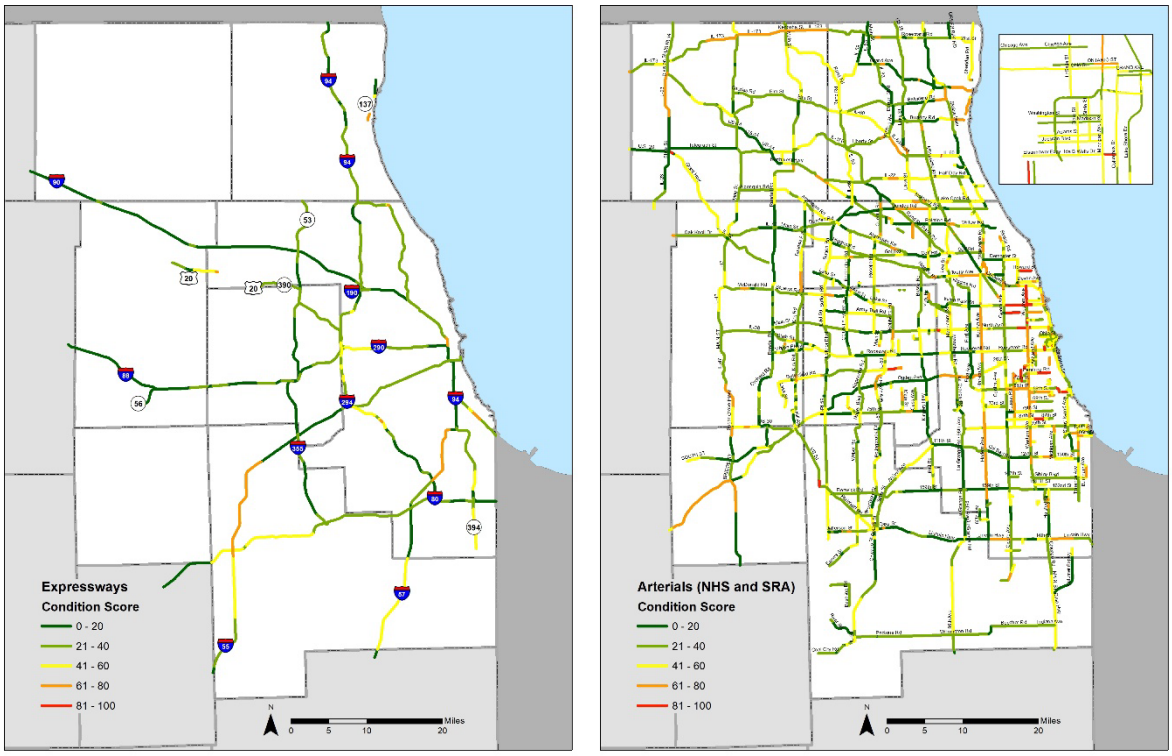
Addressing today's needs – Highways

Pavement condition

For expressways and arterials, condition is assessed based on information about the International Roughness Index (IRI) and the Condition Rating System (CRS) available from the Illinois Roadway Information System (IRIS). IRI measures ride quality while CRS is a more holistic measure of condition. CRS was rescaled from 1 – 9 to 100 – 0, while IRI was rescaled 100 – 0 using the 95th percentile as the maximum. The resulting condition need score is weighted as

(0.8 * CRS score) + (0.2 * IRI score). The project score is the lane-mileage weighted average of the scores of the segments included in the project. A higher number indicates worse condition and more need. Both the expressway and arterial measures are shown in Figure A3.

Figure A3. Expressway condition score (left) and arterial pavement condition score (right)



Source: Chicago Metropolitan Agency for Planning analysis of IRIS data.

Bridge condition

For both expressways and arterials, bridge condition is measured by the area of bridge deck that is structurally deficient. For projects with reconstruction elements, the total deck area of the structurally deficient bridges on the project segment is reported. In other words, a project that addresses more structural deficiency is better than one that addresses less, all else being equal.

Mobility

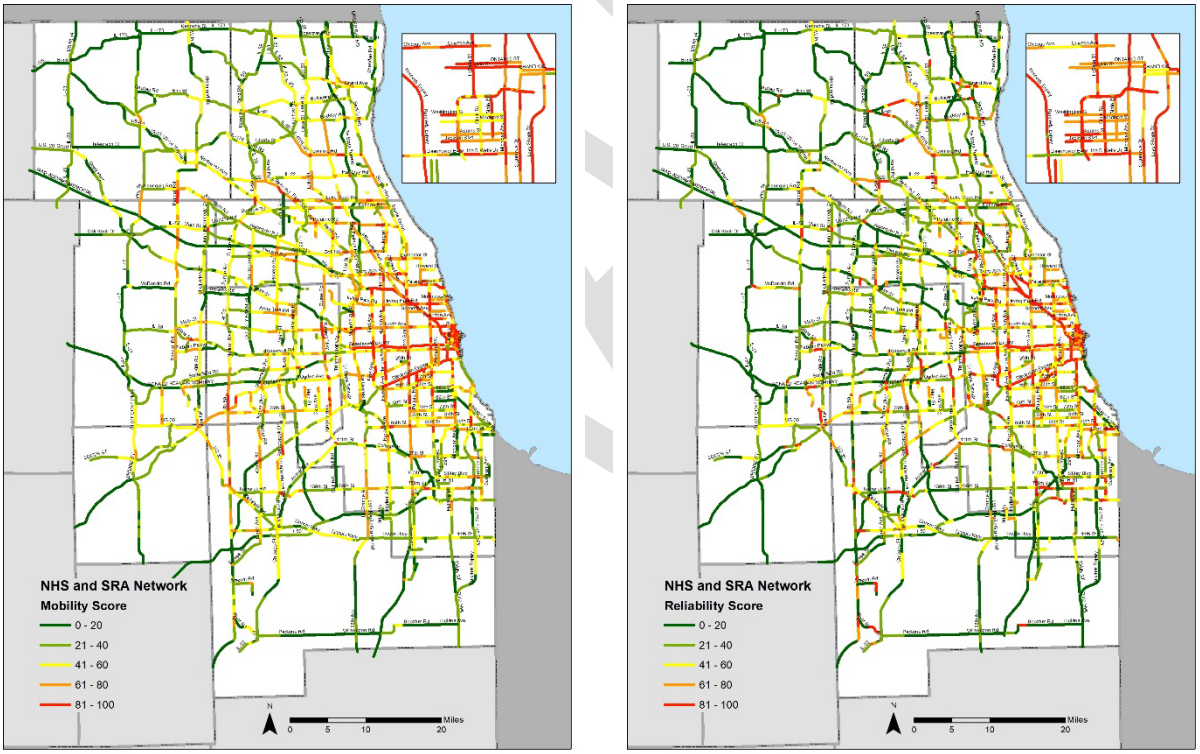
Mobility is a composite of the Travel Time Index (TTI) and the congested hours on a segment that represents the intensity and duration of congestion. TTI is congested travel time divided by the free flow travel time, while congested hours is the number of hours each day that a segment is at least lightly congested (i.e., has a TTI ≥ 1.1). Both measures result from the HERE probe-based travel time data. The score is based on the worst road direction and the worse of the AM or PM peak. To convert the TTI and congested hours segment measurements into scores, the segment measurement was divided by the 95th percentile value of all the observations and multiplied by 100. Any measurement above the 95th percentile received a

score of 100. The final mobility need score is equal to (0.5 * TTI score) + (0.5 * congested hours score). The project score is the lane-mileage weighted average of the scores of the segments included in the project. A higher score indicates more need, and therefore a higher priority location.

Reliability

Reliability is based on the planning time index (PTI), or 95th percentile travel time divided by uncongested travel time. The planning time index also results from the HERE probe-based speed data. Segment scores were developed using the same assumptions as for the mobility score (i.e., using the worst road direction and the worst of the AM or PM peak index). The reliability need is equal to the planning time index score, indexed 1-100. The project score is the lane-mileage weighted average of the scores of the segments included in the project. A higher score indicates more need and a higher priority location.

Figure A4. Mobility score (left) and reliability score (right)



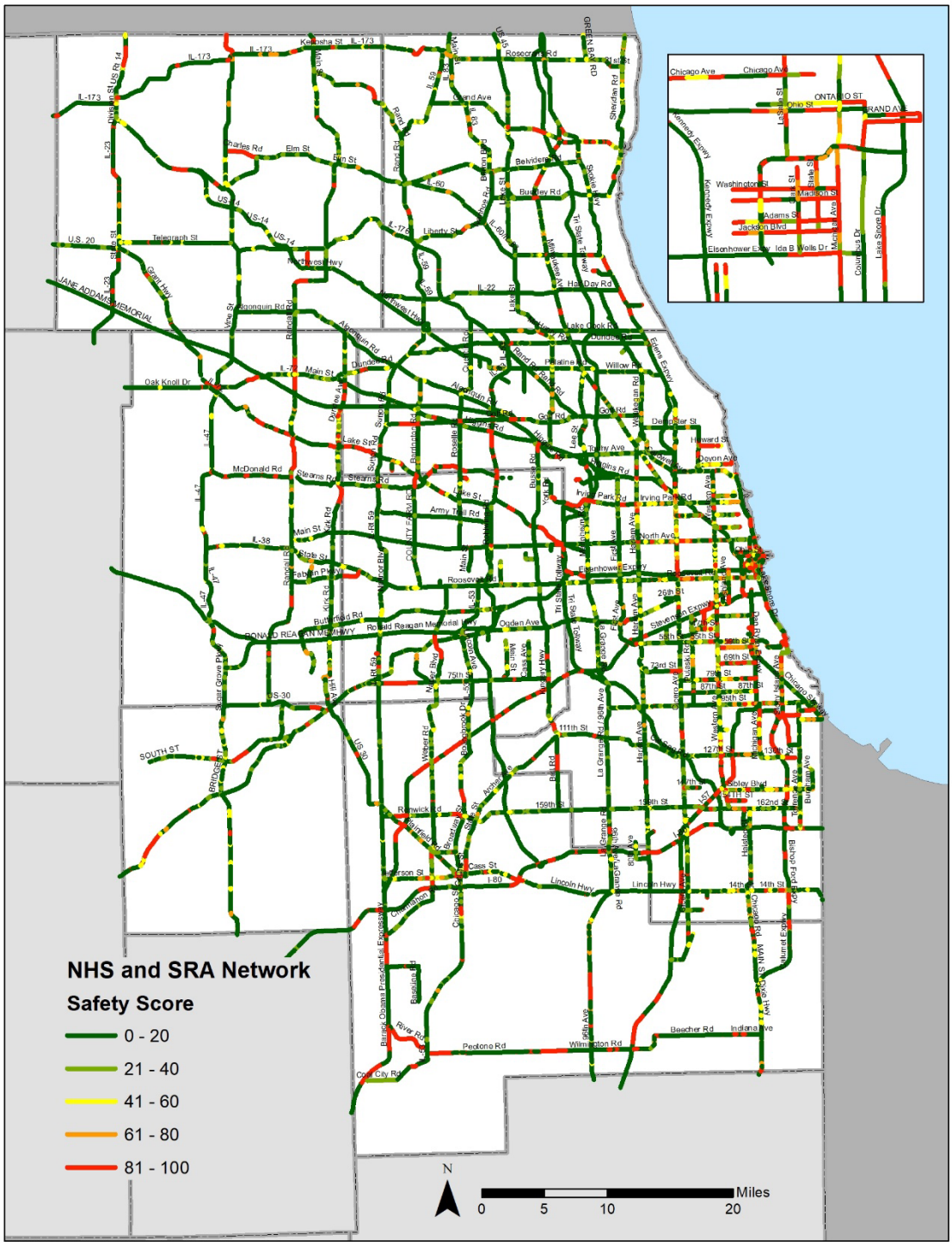
Source: Chicago Metropolitan Agency for Planning analysis of IRIS and HERE data.

Safety

The degree to which a project addresses safety needs is based on the severity of the safety problems on the project segments, as measured by the 2015 total crash serious injury and fatality rate per VMT. It is assumed that safety issues will be addressed during the design process. Rates for each segment were rescaled by dividing the segment measurement by the

95th percentile value of all the observations and multiplying by 100. Any measurement above the 95th percentile received a score of 100. The project score was the lane-mileage weighted average of the scores of the segments included in the project. A higher score indicates more need and a higher priority at the location.

Figure A5. Safety score



Source: Chicago Metropolitan Agency for Planning analysis of IRIS and IDOT Safety Portal data.

2050 Performance – Transit

Travel benefits are estimated using CMAP's travel demand model. Travel benefits are reported for the seven-county CMAP region only, not the larger modeling region. The measures are as follows:

Project ridership (daily)

This measure is the model estimate of the total number of daily boardings expected for the project. Every passenger using a project will get some benefit from the project.

Change in regional ridership (daily)

This measure is the estimate of new regional transit trips expected as a result of the project. This is a measure of regional travelers who switch to the transit mode.

Change in vehicle revenue hours (annual)

This metric is based on schedules used for modeling. Daily revenue hour values are annualized to inform annual operating cost. Note that some values are negative, usually indicating that one mode is being replaced by another.

Change in VMT (daily)

This measure is the expected increase or decrease in auto vehicle miles traveled (VMT) each day as a result of the project, as estimated by the model. It considers the change in auto person miles traveled (PMT) converted to auto VMT based on a regional average vehicle occupancy. This may decrease when a transit project attracts former auto drivers but may occasionally increase in circumstances when a new transit project induces park-and-ride customers to travel longer distances to access an improved service.

Change in average regional work trip transit travel time (minutes)

This measure is the average build time minus average no-build times, where the times are calculated by multiplying transit work trips by access type (walk, kiss and ride, park, and ride) and by corresponding access type transit trip times, and then divided by total transit trips. Travel time includes both the line-haul portion of the trip as well as access time (park and ride, kiss and ride, walk, bike, transit transfer). Work trip travel time is estimated by processing model outputs.

Change in project user commute time (minutes)

For work trips using the project, average transit trip time is calculated for the build and no-build scenarios only including trip interchanges where making a transit trip was possible in both scenarios. Newly served areas which did not allow a transit trip under the no-build condition are excluded from the calculation as "new markets." Travel time includes both the line-haul portion of the trip as well as access time (park and ride, kiss and ride, walk, bike, transit transfer). Work trip travel time is estimated by processing model outputs.

Change in fatality and serious injuries per year

Transit travel has a much lower rate of fatal crashes and somewhat lower rate of serious injury crashes. By reducing auto travel, transit is estimated to avoid be fatalities or serious injuries by reducing opportunities for crashes.

Change in jobs accessible within 90 minutes and 60 minutes for average resident

The model is used to determine the average number of jobs that can be reached by a household from anywhere in the region within both a 90- and a 60-minute transit travel time. To estimate the change in jobs accessible, the average number of jobs accessible to a household in the no-build condition is subtracted from the average number of jobs accessible to a household in the build condition. The difference measures the regional improvement in accessibility the transit project provides based on improved travel times.

2050 Performance – Expressways

2050 travel conditions with and without the project are compared to estimate project travel benefits. All projects were evaluated using an "existing and committed" network, which includes the 2019 network with Northeastern Illinois TIP projects expected to be existing in 2050. Most TIP projects are small arterial improvements. However, the Elgin-O'Hare Western Access is under construction today and is expected to be completed in the near future. The project is tested by adding it to the existing and committed network, running the regional trip-based model, and extracting desired results. The change between no-build and build measures was calculated accordingly, by using the difference between the appropriate scenarios. The characteristics of individual projects were coded into the model based on information supplied by the project submitters.

Congestion reduction

Congestion reduction is measured by change in daily vehicle-hours traveled in congested conditions ("congested VHT"), both in the CMAP region and in a five-mile corridor around the facility. It includes all network traffic occurring within the CMAP area, even if it originates or is destined to areas outside the CMAP area. Congested highway links were identified with a volume/capacity ratio exceeding 0.9 and located within the CMAP area. Total volume was multiplied by the congested travel time for each of eight time periods of the day. This calculation includes all vehicles, both autos and trucks. The change between build and no-build was calculated by simple subtraction of one total from the other.

For the corridor congested VHT, only links within the five-mile buffer of the project were considered. These links were identified through a GIS exercise for both build and no-build conditions. The total for the corridor includes traffic on the new project. For heavy truck regional and corridor congested VHT, the calculations were carried out in the same way, but only heavy truck vehicles were multiplied by link travel time.

Change in work trip travel time

Average work travel time is calculated for both the build and no build scenarios by multiplying home based work auto person trips originating within the CMAP area by the A.M. peak congested highway time and then dividing by total CMAP area home-based work person trips. The no-build average is subtracted from build average.

Job access

To estimate the number of jobs per household that can be reached by auto within 45 minutes, the A.M. Peak auto travel time was used. This measure is a weighted average per household, so the households at the origin are multiplied by the employment accessible within 45 minutes at the destination. These zonal origin values are summed, the divided by the total number of CMAP area households. The measure is the build average minus the no-build average number of jobs.

Change in number of fatal and serious injuries per year

A project's effect on fatalities and serious injuries is estimated by calculating the total VMT on expressways, arterials, and collectors and then multiplying those values by the appropriate 5-year crash rate for the facility types. The rates only include K and A crashes. On average, arterials are the most dangerous facility per vehicle mile of travel and expressways are the least dangerous. Typically speaking, building additional expressway capacity will draw motorists off of the arterial system and on to the safer expressway system, reducing fatalities and serious injuries. The measure was build minus the no-build expected number of fatalities and injuries.

Planning priorities

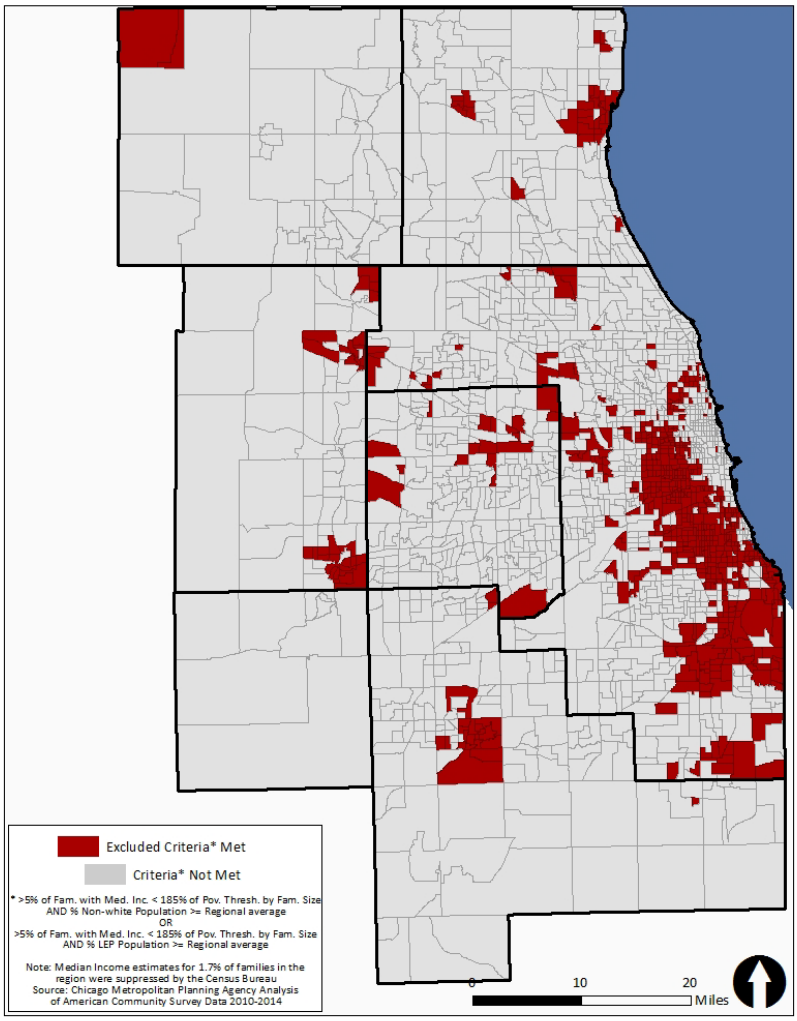
Equity impact (project use by EDAs)

CMAP is pursuing an inclusive growth[5] strategy that is meant to help the Chicago region achieve stronger, more sustained prosperity. This emphasis is being carried through to regionally significant project evaluation. In northeastern Illinois, as in many regions across the nation, low income and minority populations are often geographically concentrated. Segregation by race and income has a deleterious impact on the residents that are secluded within these geographies, but also a negative impact on the entire region.[6] CMAP has identified these areas within the region, calling them "economically disconnected areas" (EDAs).
To be considered an EDA, a census tract must have a concentration of either low-income population and persons of color, or low-income population and limited-English speaking population. The inclusive growth strategy paper explores this methodology in more detail and provides analysis of the differential outcomes for residents of EDAs.

[5] Chicago Metropolitan Agency for Planning, "Inclusive Growth," 2017, http://www.cmap.illinois.gov/documents/10180/515753/Inclusive+Growth+strategy+paper/0f01488d-7da2-4f64-9e6a-264bb4abe537.

[6] Chicago Metropolitan Agency for Planning, "Fair Housing and Equity Assessment: Metropolitan Chicago," 2013, http://www.cmap.illinois.gov/livability/housing/fair-housing.

Figure A6. Economically Disconnected Areas in the Chicago region

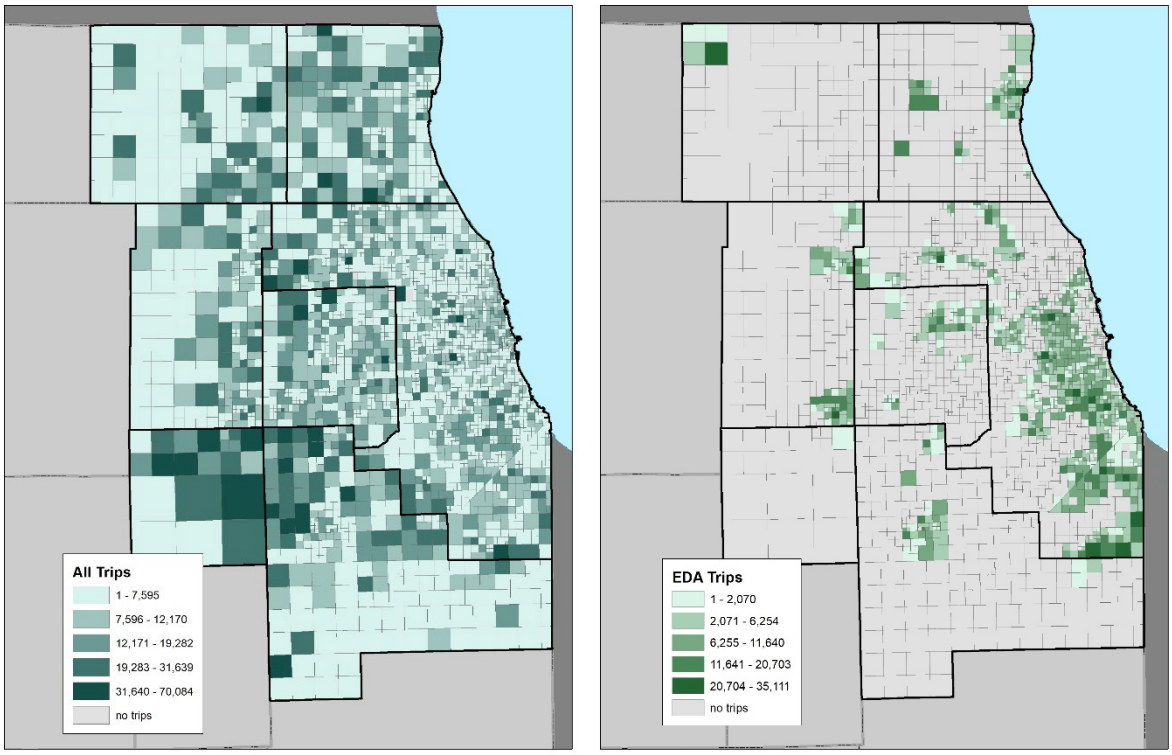


Source: Chicago Metropolitan Agency for Planning analysis.

Transit project benefits to EDAs ("equity impact") are measured as the estimated percent of trips on a project that originate from a model zone within the EDAs layer. This layer is based on census tracts, which is are then apportioned to travel model subzones and then summed to the traffic analysis zone level. The zonal proportion of economically disconnected area population is applied to the origin of the project trip table, which tracks the origins and destinations of trips using the identified project. The origin zone values are summed, resulting in an estimate of the total number of such community trips using the project. This number is divided by total project ridership to arrive at the percent of ridership from EDAs. This is the evaluation measure. For highway projects, the analogous evaluation measure is the percent of VMT on the project that originates in an EDA.

The map in Figure A7 shows an example analysis for the I-290 Managed Lanes project. The map on the left shows the number of total trips using the project by origin zone, while the map on the right shows just the trips expected to originate within EDAs.

Figure A7. Total trips (left) and trips from Economically Disconnected Areas (right) using I-290 Managed Lanes project



Source: Chicago Metropolitan Agency for Planning analysis.

Low barrier to entry jobs accessible to EDAs

While the percent of trips or percent of VMT on a project originating in EDAs is one measure of benefit to these communities, another important question is the degree to which a project provides these communities with access to jobs. This gives rise to the secondary question of whether residents of disadvantaged communities are able to take advantage of accessible jobs given their education and training. These questions were analyzed in combination by determining the number of low-barrier but relatively high-paying jobs accessible to EDAs within 60- and 90-minute commutes (transit projects) or 45 minutes (highway projects) with and without a candidate project.

The starting point for this analysis is occupational employment and job openings data (2014 and projected 2024) and worker characteristics (2014) data from the Table 1.7 of the

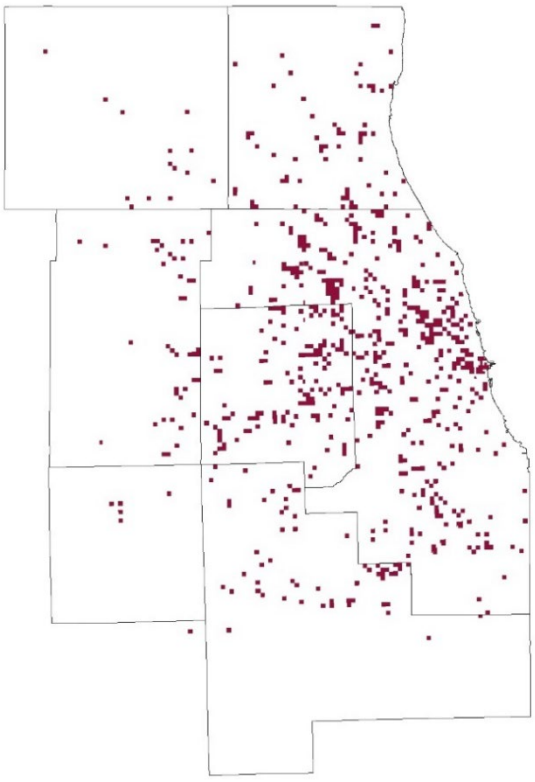
Employment Projections program[7] of the U.S. Bureau of Labor Statistics. The table was filtered to identify jobs with:

- Positive projected growth 2014-24
- Median annual wage higher than the national median ($36,200)
- Educational requirements for entry:
    - no formal educational credential,
    - high school diploma or equivalent, or
    - postsecondary non degree award
- Less than five years of work experience required

Next, using a crosswalk between occupations and industries, the percent of jobs for each six-digit North American Industrial Classification System (NAICS) code that fall into the middle-skill category was calculated. Then Dun and Bradstreet point GIS data were used to identify the locations and counts of jobs by industry. The map in Figure A8 shows subzones expected to have 50 or more jobs in low-barrier industries.

[7] U.S. Bureau of Labor Statistics, "Employment Projections and Occupational Outlook Handbook," accessed May 2018, https://www.bls.gov/news.release/ecopro.toc.htm.

Figure A8. Concentrations of jobs with low barriers to entry by subzone



Source: Chicago Metropolitan Agency for Planning analysis of U.S. Bureau of Labor Statistics and Dun and Bradstreet data.

A transit project's ability to improve access to low-barrier jobs for EDAs is estimated by first running the trip-based model for each candidate project to determine the change in total jobs accessible to households in the region in aggregate. In these results, the subset of origin-destination (O-D) pairs with origins in excluded community subzones is flagged. The number of low-barrier jobs by destination subzone is also appended to the table. Finally, the table is queried to determine the change in the number of low-barrier jobs accessible within 60 and 90 minutes for workers living in economically disconnected area model zones.

A highway project's ability to improve access to low-barrier jobs for EDAs is estimated by an analogous method based on the CMAP regional travel model, only using a 45-minute travel time.

Infill support

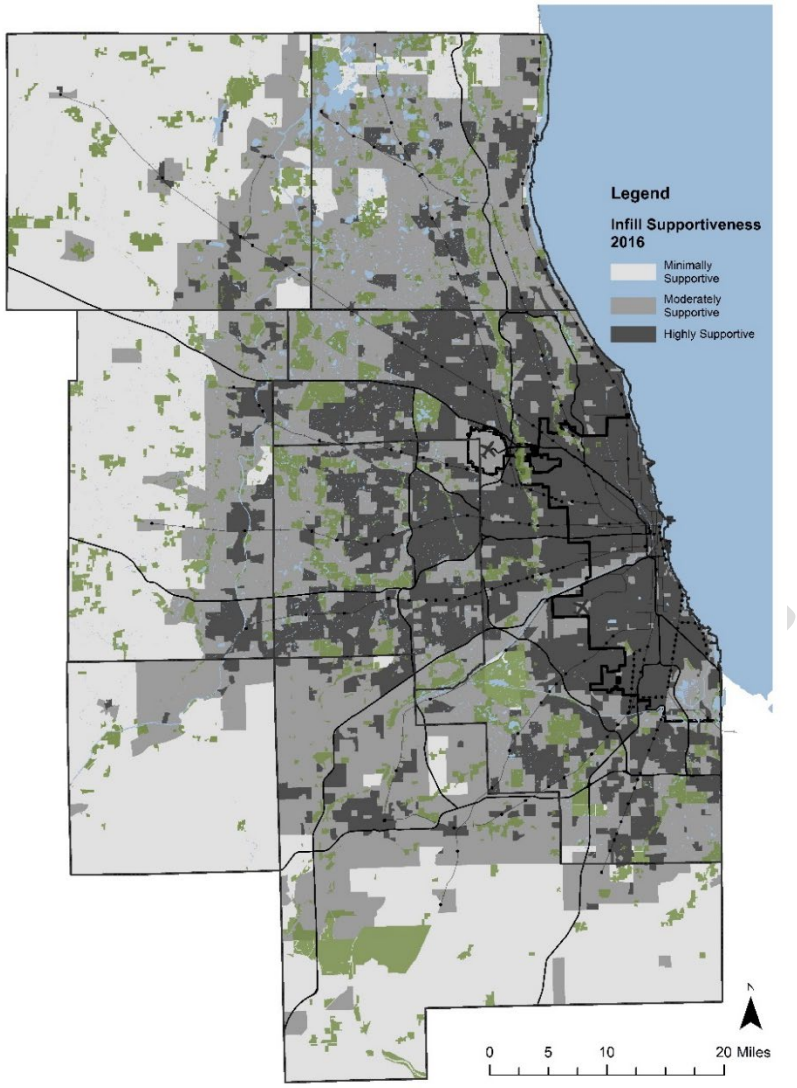
This measure captures the degree to which a project supports growth in areas that are appropriate for infill development. Based on work done for the CMAP Infill and TOD Snapshot Report,[8] the region is divided into three categories – minimal, moderate, and highly supportive

[8] Chicago Metropolitan Agency for Planning, "Infill and TOD," 2018, http://www.cmap.illinois.gov/documents/10180/0/Infill+and+TOD+Snapshot+Report.pdf/4273b7d1-0a16-4c2f-a93e-dce1c2a472fd.

of infill development – as shown in the map below. The zonal acres in each category are calculated in GIS based on four inputs: housing density, road density, employment density, and land cover:

- Housing unit density: Housing units per square mile (2010-14 ACS)
- Employment density: Employment per square mile (2015 Illinois Department of Employment Security)
- Road density: Road miles per square mile (2016 Navteq)
- Land cover: Percent of a block group that is not agriculture or natural land (2011 National Land Cover Data set and 2010-15 data CMAP's Northeastern Illinois Development Database)

Figure A9. Infill supportiveness



Source: Chicago Metropolitan Agency for Planning analysis.

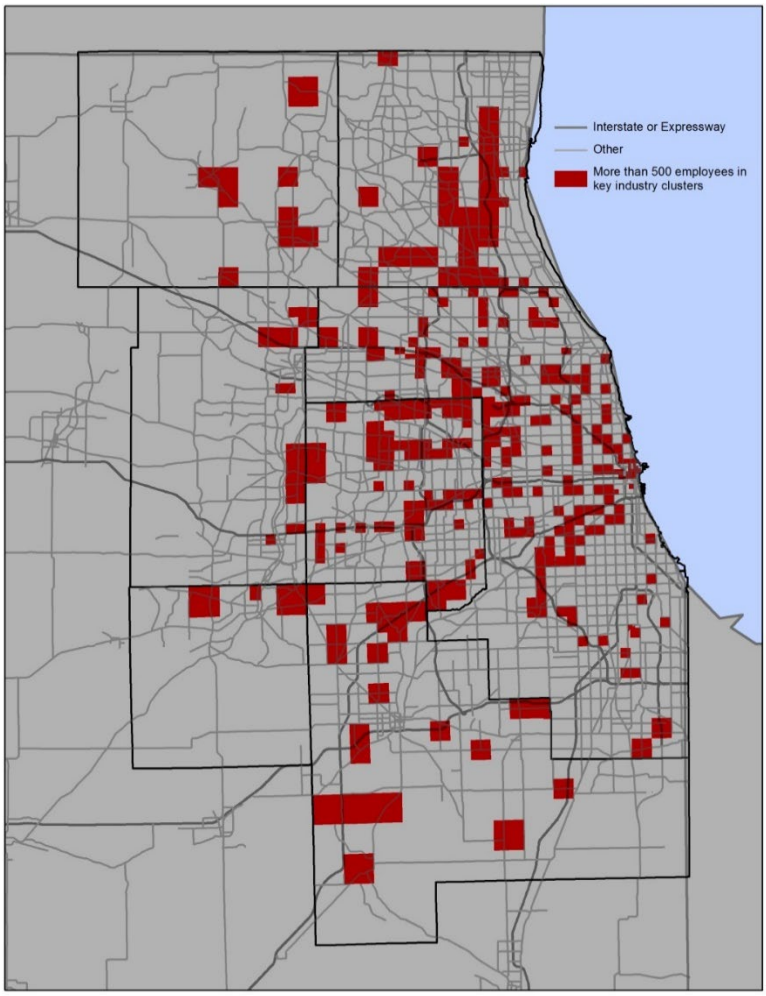
To calculate the infill support score, the project travel shed is identified. This is a table of all the trips using the project derived from the travel model analyses. To determine how well the project serves an origin or destination, the proportion of trips using the project/total trips is calculated. A zone with a high proportion of trips using the project is better served than one with a small proportion. This proportion is applied separately to the acres of high, medium, and low supportive land use acres by origin and destination. Finally, a weighted score is calculated based on the fraction of the acreage in each category where minimally supportive = 0 points, moderately supportive = 50 points, and highly supportive = 100 points. The mix of land uses is the critical characteristic, thereby eliminating the risk that a large project gets a better score merely because it has a larger market.

Benefits to key industries and addressing disinvested industrial areas

While direct mobility benefits of transportation projects are widely understood to have positive economic impacts, the broader changes in economic productivity triggered by transportation investments are a relatively new direction in transportation and economic research. New or improved transportation in an area allows those who live in that area to access more destinations in a shorter amount of time and allows people from other parts of the region to access the area more quickly and easily. In areas where transportation projects increase access to new customers or labor pools land values may increase, previously vacant properties may be developed for new use, and existing businesses may become more profitable.

To evaluate the potential economic impact of arterial transportation projects, CMAP identified the travel shed for each project and calculated the number of jobs in "key industries" within each travel shed. Key industries are industries that are export-oriented, regionally specialized, and sensitive to changes in in-region road transportation costs. Export-oriented industries bring money into the region from national and international markets and have been identified through prior CMAP analysis on traded clusters. Regionally specialized industries are clusters with special strength and prominence in the Chicago region as compared to the nation, measured as a location quotient greater than 1.0. Industries that spend a higher-than-average percent of their expenditures on in-region transportation are most likely to see profitability and productivity gains from transportation improvements. CMAP also calculated the square footage of vacant flex and industrial rentable building area (RBA) in each project's travel shed as a measure of a project's potential to generate new economic activity. Key industry employment and industrial vacancy are each indexed 1-100, with 100 being the best score for a project.

Figure A10. Concentrations of jobs in key industry clusters



Source: Chicago Metropolitan Agency for Planning analysis.

Economic impact from industry clustering

As documented by CMAP[9] and others, there are widely known benefits to geographical clustering by industry. For instance, industries requiring specialized skills benefit from having a large common labor pool. Not only are individual businesses able to draw from a larger supply of labor, but the labor pool itself is more productive because of "knowledge spillovers" as workers interact and move from firm to firm, introducing improvements to business processes. In another example, businesses in an industry cluster may serve as suppliers to one another.

[9] Chicago Metropolitan Agency for Planning, "Industry clusters in the Chicago metropolitan region," September 2015, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/industry-clusters-in-the-chicago-metropolitan-region.

This is connected to transportation infrastructure because roads and transit help encourage this clustering or agglomeration effect. For instance, a new road or new transit line that shaves a few minutes off typical travel times in an area where a particular industry cluster is located has effectively expanded the common labor pool by making more workers available within a certain drive time. It has also increased the possibility of knowledge spillovers, making workers more productive. These changes in the business landscape can be measured, first as the change in available workers within a certain travel time and second through the "effective density" of employment (that is, the number of jobs in a zone plus the number of jobs located in nearby zones, scaled by the travel time between these zones). As the travel time decreases due to a transportation investment, effective density increases. The change in effective density is then translated into an increase in economic output through a method refined by researchers in the U.S. with the second Strategic Highway Research Program[10].

Effective density, again, is the number of jobs in a zone plus the number of jobs located in nearby zones, scaled by the travel time between these zones. In other words:

$$D = \frac{E_i}{t_{ii}^{\alpha}} + \sum_{j}^{i \neq j} \frac{E_j}{t_{ij}^{\alpha}}$$

In this equation, D is effective density, E_i is the employment in zone i (the analysis zone), E_j is the employment in each zone j, t_{ij} is the travel time between zones i and j, and α is a factor that measures "decay" in the importance of changes in travel time as travel times get shorter. Travel

[10] Economic Development Research Group, "SHRP2 Project C11: Accessibility Analysis Tools: Technical Documentation and User's Guide," July 2013, http://www.tpics.us/tools/documents/SHRP-C11-Accessibility-Tech-Doc-and-User-Guide.pdf.

time between zones is taken from the CMAP travel demand model. The first term of the equation is referred to as the scale factor and represents travel time within a model zone. Travel times within a zone used in the scale factor are determined by averaging the travel times to the neighboring zones and dividing the average by two. The effective density is calculated for the build and no-build condition.

Once the change in effective density resulting from a project is calculated, the next step is to estimate how this affects productivity. Numerous studies have estimated how productivity increases with increased effective density in various industries. CMAP's review of the literature suggests that the general categories of production, construction, consumer services, and producer services had different responses to industry clustering mediated by transportation, as measured by the elasticity of productivity – the percent change in productivity resulting from a 1% change in effective density—shown below:

Table A3. Industrial groupings used for the calculation of wider transportation economic benefits

Industry group	NAICS codes	Elasticity of productivity
Production	11, 21, 31, 32, 33	0.021
Construction	23	0.034
Consumer Services	42, 44, 45, 48, 71, 81	0.024
Producer Services	51, 52, 53, 54, 55, 56	0.083
General	All others	0.043

Source: Daniel Graham, Stephen Gibbons, and Ralf Martin, "Transport Investment and the Distance Decay of Agglomeration Benefits," (February 2009).

The total increase in economic output is calculated from the change in productivity resulting from the transportation project and the regional average output per worker, as follows:

$$\Delta Y = \sum_i \sum_k \left(\frac{D_{b,k}}{D_{nb,k}} - 1 \right) \mu_k \, w_k Z E_{i,k}$$

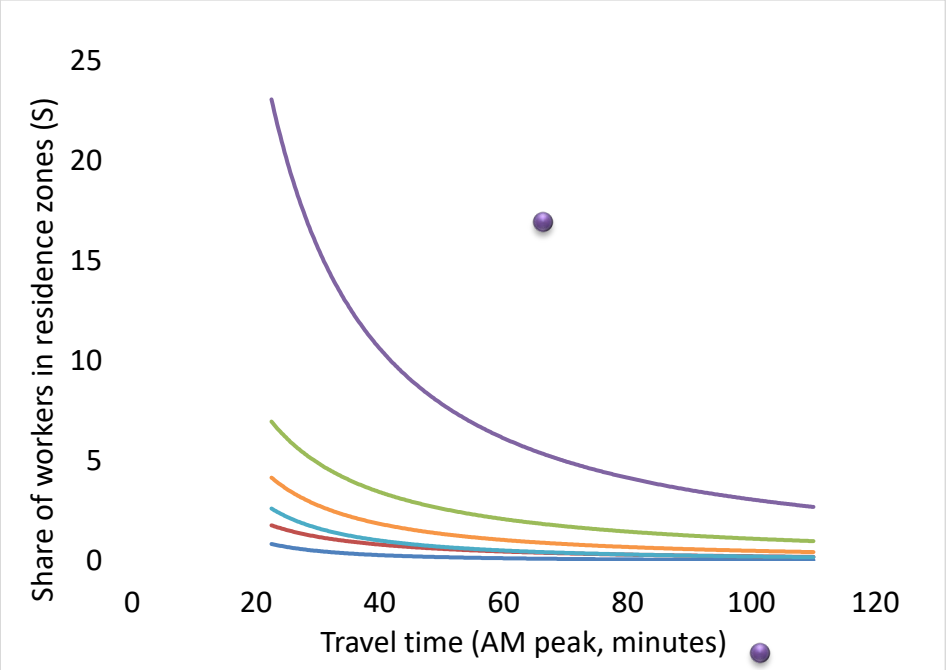
In this equation, ΔY is change in gross regional product, $D_{b,k}$ is effective density in industry group k with the project and $D_{nb,k}$ is without the project, μ_k is the elasticity of productivity for industry group k, $E_{i,k}$ is the number of employees of industry group k in the zone i, w_k is the wages per worker in the industry, and Z is a factor that relates wages to gross regional product. Wages are a proxy for economic output, as GRP has additional factors included that are missed by the simple aggregation of wages. In order to estimate the total effect on GRP, a multiplier is used. In the CMAP region, Z = 3.11. The data on employment are from the unemployment insurance file (ES-202) from Illinois Department of Employment Security, 1st quarter 2015. Each zone is processed five times using the five elasticities of productivity in the table above.

In addition to increasing the productivity of the labor force through effective density, a second effect from a transportation project is increased economic output due to an increase in the

total supply of workers available to businesses in a zone. In other words, if commute times are reduced for the workforce, business may be able to attract workers at a lower cost. The lower commute times will increase the labor pool who might work at a location. The concept behind this estimate of economic impact due to transportation projects is that, by shortening commutes, employers in a zone will be able to capture more of these potential workers, increasing the labor supply.

To estimate this effect, CMAP used a method based on techniques developed originally by the Department for Transport in Britain[11]. Using data from the Census Longitudinal Employer-Household Dynamics (LEHD) dataset[12], the first step is to determine the zones of residence for the employees in each zone in the region. Then, based on the no-build travel times between these zones (the morning peak period [7:00 a.m. to 9:00 a.m.] was used), the fraction of the workers in each residence zone who travel to a given employment zone was plotted against the travel time between these zones. As in the graph below, six groups were determined empirically to represent varying degrees of sensitivity to commute time.

Figure A11. Distance decay of employment zones



Source: Chicago Metropolitan Agency for Planning analysis.

[11] Department for Transport, "TAG UNIT A2.1: Wider Impacts," January 2014, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/427091/webtag-tag-unit-a2-1-wider-impacts.pdf.

[12] U.S. Census Bureau, "Longitudinal Employer-Household Dynamics," accessed May 2018, https://lehd.ces.census.gov/.

The points in the chart above were fit with curves of the form $S = at^{\beta}$ where S is the share of workers in residence zones who work in an employment zone, t is travel time, a is a constant used to fit the curve, and β is a curve-fitting parameter that measures sensitivity to travel time savings. The parameters for each group are as follows:

Group	a	β	Group	a	β
1	1542.6	-1.35	4	326.88	-1.401
2	315.45	-1.224	5	117.45	-1.344
3	421.97	-1.631	6	249.48	-1.823

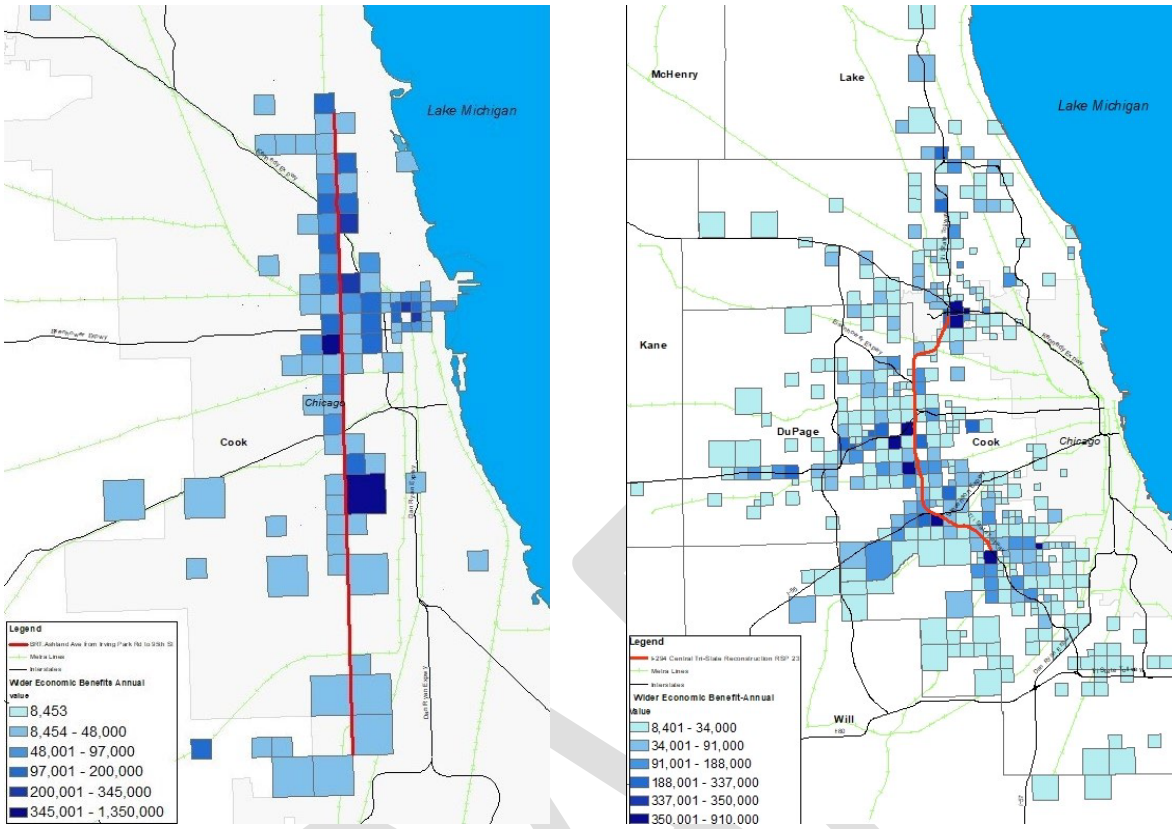
To translate this into economic output, the travel time for each O-D pair is put into the formula for employment share sensitivity to commute time (one of the 6 versions) for the build and no-build conditions. If the travel time decreases, a greater share of a residential zone's workers would be attracted to working in an employment zone. The potential workers for each employment zone from all zones containing households was summed, and then the resulting values for all employment zones were summed.

$$\Delta Y = \sum_i \sum_k \left(\frac{S_b}{S_{nb}} - 1 \right) \mu_k \, w_k Z E_{i,k}$$

In this formula, S_{nb} is the share of workers in all residence zones who work in an employment zone i in the no-build condition, S_b is the share who potentially would work in employment zone i given improved commute times, and the other symbols are as defined previously. The elasticity of productivity was applied to the ratio of potential workers with the project and without the project to translate the increase in labor supply into an increase in economic output.

The results of analyzing two projects – Ashland Bus Rapid Transit and the I-294 Central Tri-State Mobility Improvements – are shown in Figure A12. As expected, increased economic output tends to be clustered most near the project itself because travel time savings are greatest there – improvements tend to "wash out" further away from the project. But the results also depend on the industry mix and the existing output per worker in the area as well as the number of employees nearby.

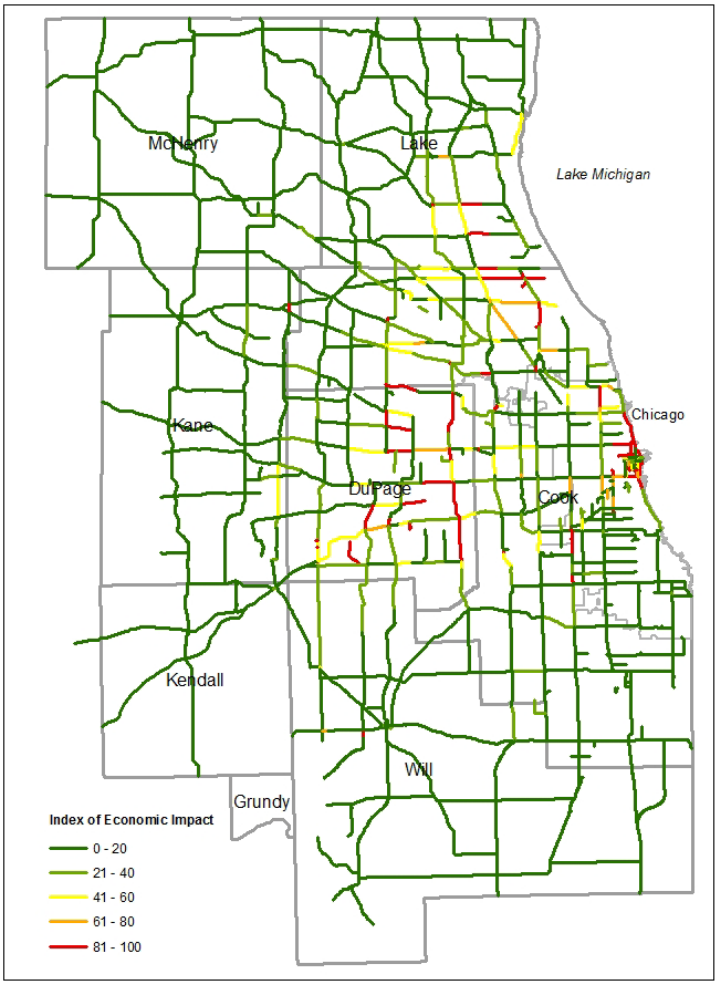
Figure A12. Example economic impacts for Ashland BRT (left) and I-294 Mobility Improvements (right)



Source: Chicago Metropolitan Agency for Planning analysis of model outputs.

Because arterial projects were not modeled directly, the economic impacts of added capacity were instead modeled indirectly based on a network analysis. All segments of the NHS were coded in the CMAP travel demand model with a 10-percent increase in capacity. Then, the traffic assignment portion of the model was run for each segment sequentially. The resulting changes in zone-to-zone travel times within the travel shed of that segment were then used to estimate economic impact as described above. The economic impact for each segment was then converted to a 0 – 100 proportional score and mapped as in Figure A13. Individual RSPs were evaluated by overlaying the proposed project. New arterials were scored based on the parallel routes.

Figure A13. Economic impact network scoring for arterial projects.



Source: Chicago Metropolitan Agency for Planning analysis.

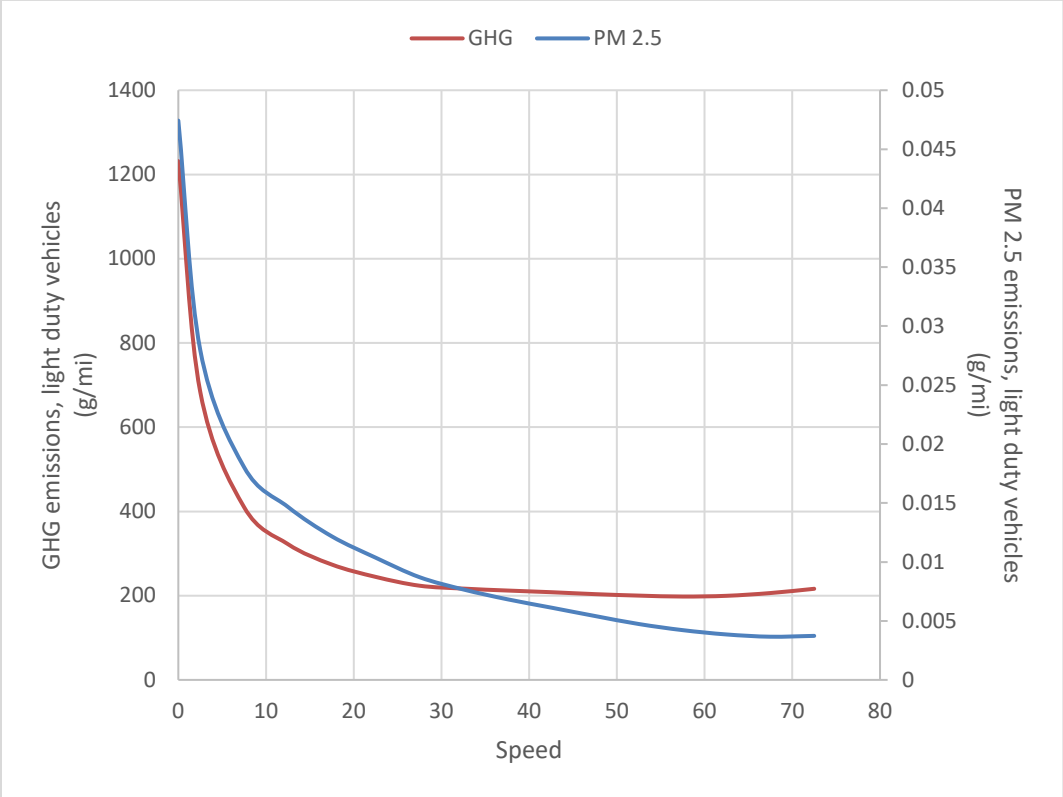
In general, the technique provides a reasonable way to estimate the comparative economic impacts of candidate transportation projects by their effects on labor productivity which ties well into CMAP's policy work in industry clustering. It does not capture benefits to shippers, the benefits of having a larger customer base within a certain area, or the macroeconomic effects of reduced household and business transportation costs. In project evaluations for GO TO 2040, CMAP had used the commercial economic impact software TREDIS, which does attempt to account for these additional benefits. As a result, economic impact estimates for projects in the ON TO 2050 Update are considered partial estimates and are generally smaller than estimated in GO TO 2040.

Greenhouse gas and particulate matter emissions

Greenhouse gas and particulate matter emissions estimates are based on changes in regional VMT and vehicle speed caused by the project. The VMT change is multiplied by an emissions factor for vehicles in grams per mile derived from the US Environmental Protection Agency's

Motor Vehicle Emissions Simulator (MOVES) model, which is the model used in air quality conformity analysis. The GHG emissions reduction benefit of reducing VMT depends on the speed of the vehicles comprising the eliminated VMT; a chart depicting the influence of speed on emissions rates is shown below.

Figure A14. GHG and PM2.5 emissions rates by speed



Source: Rate table developed by Chicago Metropolitan Agency for Planning from U.S. Environmental Protection Agency MOVES model.

The CMAP travel model is used to tabulate VMT by speed bin and vehicle type. VMT is then multiplied by the appropriate emissions factor from a rate table. CMAP applied this method to estimate the effect of expressway and transit projects on regional greenhouse gases. This method was also used to determine the change in PM 2.5 emissions within excluded communities for expressway projects.

Natural resource impact

To estimate the impact of transportation projects on critical natural resources, CMAP calculates the potential spinoff household and employment development caused by changing accessibility. This information is used to estimate the potential additional impervious surface caused by the project. This does not include the project itself. CMAP then compares the location of new development with important natural resources identified as the Conservation

Areas Layer including conservation areas, high-quality watersheds, and aquifers experiencing unsustainable rates of groundwater drawdown.

CMAP uses the regional travel demand model to estimate a project's potential impact to the transportation network. Specifically, the model estimates the change in relative accessibility of each model subzone; quarter-section sized geographies that CMAP uses for household and employment forecasting. For each project, the difference in commute travel times between build and no-build is calculated for each zone-to-zone trip interchange. The probability of household change was based on the change in zonal accessibility. For all projects, the ON TO 2050 Update draft household and employment forecasts for 2050 are the no build forecast. The accessibility is increased by adding the project to the network to represent the build condition. The resulting probability of increase in households is applied to the forecast 2050 households or employment. The difference between build and no build households is included in a GIS file for comparison with conservation areas and aquifers at risk of partial or complete desaturation. The direct impact of expressway projects on natural resources is highly dependent on detailed engineering, but a planning-level estimate of impact is calculated by creating a 500-foot buffer around each project and calculating the amount of conservation area contained within the buffer. To account for the greater impact on nearby natural areas of new construction versus reconstruction of existing facilities, the conservation area within the buffer was multiplied by the ratio of new lane miles to total proposed lane miles.

Measures of impervious cover change are a proxy measure of water pollution, erosion, and the urban heat island effect. Impervious surface creation is estimated from a subzone-level statistical relationship between imperviousness in the 2006 National Land Cover Dataset and the density of households and jobs. This statistical relationship is applied to the change in potential households and jobs in 2050 resulting from the project's accessibility improvement, as previously described. The total acres of impervious surface created as a result of each project is tallied, as is the acreage of impervious surface created in high quality sub-watersheds (those with less than 10% existing impervious cover). The direct impervious surface created as a result of the project construction is calculated based on the assumption that additional lanes are 12 feet wide and that new projects would also have 10-foot paved outside shoulders and 4-foot paved inside shoulders, consistent with AASHTO interstate design standards.

Freight impact

The freight impact measure captures potential positive and negative impacts on the region's freight capacity. For highway projects, we consider whether the project improves the National Highway Freight System (including proposed Critical Urban Freight Corridors), the truck volume on the highway to be improved, and whether the highway improvement is on a Class I/Class II designated truck route. For transit projects, we considered the implementation of CREATE, operations or infrastructure improvements on rail lines with substantial freight use (more than 12 freight trains per day), and how the project might potentially increase or decrease freight-passenger conflicts on the region's rail system. For both transit and highway projects, the

benefits to freight are rated on a -25 to 100 scale, with -25 representing potential disbenefits and 100 representing significant improvements to freight movement.

Appendix B. Glossary

ACS - American Community Survey
ADA – Americans with Disabilities Act
ART – Arterial rapid transit
BNSF – BNSF Railway, operator of Metra's busiest line
BRT – Bus rapid transit
CDOT – Chicago Department of Transportation
CMAP – Chicago Metropolitan Agency for Planning
COST – Capital Optimization Support Tool, developed by the RTA
CRA - Condition rating system (for roads)
CREATE – Chicago Region Environmental and Transportation Efficiency Program
CTA – Chicago Transit Authority
CVHT - Congested vehicle hours traveled
DOT – Department of Transportation
EDA – Economically Disconnected Area, as defined by CMAP's Inclusive Growth ON TO 2050 strategy paper
FTA – Federal Transit Administration
GHG – Greenhouse gas
GIS - Geographic information system
GRP - Gross regional product
HERE - A map data provider
IDOT – Illinois Department of Transportation
IRI - International Roughness Index
IRIS - Illinois Roadway Information System
LEHD - Longitudinal Employer Household Dynamics
MOVES - Motor Vehicle Emissions Simulator
NAICS - North American Industry Classification System
NHS -National Highway System
NTD – National Transit Database
O&M – Operations and maintenance
PTI - Planning Time Index
RBA - Rentable building area
RLE – Red Line Extension, a CTA rail project on the south side of Chicago
RPM – Red Purple Modernization, a CTA rail project on the north side of Chicago
RSP – Regionally Significant Project
RSP ID – RSP identification number, created by CMAP for evaluation
RTA – Regional Transportation Authority
SRA - Strategic regional arterial
STOPS - Simplified Trips on Projects, an FTA model
TIP – Transportation Improvement Program

TOD – Transit-oriented development
TREDIS - Transportation Economic Development Impact System
TTI - Travel Time Index
UP – Union Pacific, operator of three Metra lines
VHT – Vehicle hours traveled
VMT – Vehicle miles traveled
YOE$ – Year-of-expenditure dollars