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ADDENDUM TO THE AGENDA

ASSOCIATION OF CENTRAL OKLAHOMA GOVERNMENTS
INTERMODAL TRANSPORTATION TECHNICAL COMMITTEE
Thursday, July 21, 2016

ACOG Board Room – 10:00 a.m.
21 E Main St, Ste 100
Oklahoma City, OK 73104

III. ACTION ITEMS (Cont.):

D. Consider recommending that the ITPC approve the financial plan for Encompass 2040. (ATTACHMENT III-D)

E. Consider recommending that the ITPC select the Alternate 2 Network for inclusion in the Encompass 2040 metropolitan transportation plan, and seek public review and comment. (ATTACHMENT III-E)

ACOG

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MEMORANDUM

DATE: July 19, 2016

TO: Intermodal Transportation Technical Committee

FROM: Holly Massie, Special Programs Officer II
Transportation & Planning Services

SUBJECT: Financial Strategy for Encompass 2040

INFORMATION:

Federal guidelines require that long-range metropolitan transportation plans include a financial plan that demonstrates how the adopted plan can be implemented. The plan must ensure that the total estimated costs to implement and maintain the region's transportation system will not exceed transportation revenues reasonably expected to be available from public and private sources. Additionally, the financial plan must:

- Contain system-level estimates of costs and revenue sources,
- Identify and ensure the availability of any new funding sources, and
- Reflect year-of-expenditure dollars for the funding estimates included in the plan.

ANTICIPATED REVENUES FOR ENCOMPASS 2040

A 30-year projection of transportation revenue (2010–2040) was developed by ACOG staff and presented to the Intermodal Transportation Technical Committee (ITTC) and Citizens Advisory Committee (CAC) for review in March 2016. The revenue projection of approximately $10 billion was subsequently approved by the Intermodal Transportation Policy Committee at its March 2016 meeting.

This estimate was based on transportation revenues historically available to, or spent within, the OCARTS area from a variety of federal, state and local sources. Federal and state funds spent within the OCARTS area during FY 2010-FY 2014 served as the historical basis to develop an annual average that was projected over the 30-year planning period. Federal discretionary funds, tied to specific OCARTS projects, were also included, and local revenues were estimated based on a survey of OCARTS area local governments. The table on the following page summarizes the OCARTS area revenue projection for Encompass 2040.

ESTIMATED TRANSPORTATION REVENUES
FOR IMPLEMENTATION OF ENCOMPASS 2040

A. STREETS & HIGHWAYS - FFY 2010-2040	**Estimated 30-Year Total**
Federal Sources	
Federal-aid Formula Funds Includes NHPP, HSIP, & STP Funds (UZA, Statewide) - a portion of STP funds will be spent on bicycle & pedestrian improvements	$3,139,606,500
Discretionary Funds - FFY 2010-2014 Includes ARRA, ER, ITS, I-40 Crosstown earmarks & TCSP	$254,937,500
Future Discretionary Funds - FFY 2015-2017 Includes remaining I-40 Crosstown earmarks & TCSP	$57,329,300
State Sources	
State Maintenance, Industrial Access and Lake Access Programs Includes County Road & Bridge Funds and State Road, Bridge & RR Maintenance Funds	$1,016,761,000
Oklahoma Turnpike Authority (OTA) - (equals estimated turnpike costs) [a]	$736,526,100
State Taxes & Fees Distributed Directly to Counties for Roads Includes Gasoline, Diesel & Special Fuel Taxes, Gross Production Taxes, and Motor Vehicle Collections	$887,321,500
State Taxes & Fees Distributed Directly to Cities and Towns Includes Gasoline Excise Tax, Motor Vehicle Collections	$341,961,400
Local Sources	
Local Funds for Roadway Construction and Maintenance Includes funding for roadways from: General Fund, Dedicated Sales Taxes, General Obligation Bonds, Street & Alley Fund, and Developer Contributions	$2,435,101,700
Street & Highway Subtotal	**$8,869,545,000**
B. BICYCLE & PEDESTRIAN MODES - FFY 2010-2040	**Estimated 30-Year Total**
Federal Sources	
Federal-aid Formula Funds Includes TAP (UZA, Statewide)	$68,682,600
Local Sources	
Local Funds for Bicycle & Pedestrian Construction and Maintenance [b] Includes funding for bicycle & pedestian improvements from: General Fund, Dedicated Sales Taxes, General Obligation Bonds, and Developer Contributions	$206,538,100
Bicycle & Pedestrian Subtotal	**$275,220,700**
C. TRANSIT MODE - FFY 2010-2040	**Estimated 30-Year Total**
Federal Sources	
Federal-aid Formula Funds Includes FTA Sec. 5307, Sec. 5310, Sec. 5311, JARC, New Freedom, and CMAQ Transfers	$339,441,800
Discretionary Funds Includes FTA Sec. 5309, ARRA, and TIGER	$63,607,800
State Sources	
Transit Revolving Funds for COTPA, CART, Citylink, First Capital Trolley, and Delta Public Transit (partial)	$43,846,800
Local Sources	
Includes municipal, university & private funds for urban and rural operators	$831,652,900
Transit Subtotal	**$1,278,549,300**
TOTAL ESTIMATED REVENUES FOR ENCOMPASS 2040	**$10,423,315,000**

Note: Estimated Revenues are not inflated. Figures are rounded.

[a] Turnpike revenues were updated to include OCARTS area projects included in OTA's Driving Forward plan, May 2016.

[b] Local bike/ped revenues were updated to include OKC revenues for sidewalks and trails from MAPS 3 and 2007 GO bond, June 2016.

ESTIMATED COSTS FOR ENCOMPASS 2040

Streets and Highways

Each of the Encompass 2040 Alternates was assigned an estimated cost by the MPO. Costs for the street and highway portion were based on unit costs developed from recent construction information provided by the Oklahoma Department of Transportation (ODOT) and by local entities for the non-interstate facilities. The unit costs for construction[1], maintenance, and right-of-way acquisition were presented to the ITTC and CAC, and approved by the Policy Committee in January 2016. The approved unit costs reflected 2010 base year dollars, which were later inflated to year-of-expenditure (YOE) dollars as described later in this memo.

As a reminder, the Encompass 2040 alternate networks include the following:

- Alternate 1—Present + Committed Network: Includes all existing roadways and transit routes with improvements implemented since 2010, as well as those for which funding is committed through December 2016. The network also includes portions of the Oklahoma Department of Transportation's 8-Year Construction Work Plan.

- Alternate 2—Improved Transportation Network: Includes all existing roadways and transit routes, the Present + Committed Network (Alternate 1), as well as future transportation improvements. These improvements include transportation projects submitted during the Encompass 2040 call for projects, long-range projects from the Oklahoma Department of Transportation, the two new OCARTS area turnpikes proposed by the Oklahoma Turnpike Authority, the downtown Oklahoma City modern streetcar, and gap projects identified by ACOG staff.

- Alternate 3—Improved Transportation Network + Regional Transit: Includes all existing roadways and transit routes, the Present + Committed Network (Alternate 1), future transportation improvements (Alternate 2), as well as regional commuter rail, bus rapid transit, and supportive bus routes (as identified by the Commuter Corridor Study and the 2005 COTPA Regional Fixed Guideway Study.)

Bicycle and Pedestrian Facilities

Many of the projects submitted during the Encompass 2040 call for projects contained bicycle and pedestrian components. The estimated costs of these improvements were developed by applying a unit cost of $60/linear foot for 4-5' wide sidewalks and $130/linear foot for 10' wide multi-purpose trails. Bike lanes were estimated at $800,000/mile (both sides of street) and Bike routes were estimated at $5,500/mile[2]. Similar to the unit costs developed for arterials and collectors, the bicycle/pedestrian unit costs were developed by local government members and were based on recent construction costs.

[1] Unit costs for construction include engineering, grading, drainage, surface and base improvements, utility relocation, sodding, signing, pavement markings and structure costs (such as bridges, curbs, and gutters). Unit costs for maintenance are for milling, base repair, resurfacing with a two-inch asphalt overlay (P.C. concrete for interstates, turnpikes and freeways), and pavement markings.

[2] Bike lanes include widening or reconstruction of the roadway to accommodate sufficient width for bicycles and pavement markings, usually on both sides of the street. Bike routes include signage and pavement markings on existing roadway widths.

The bicycle/pedestrian unit costs were converted to 2010 base year dollars, and subsequently inflated to YOE dollars based upon project implementation phasing, as well. Cost estimates for additional planned bicycle and pedestrian improvements were estimated from locally adopted trails master plans. In total, the cost for OCARTS area bicycle and pedestrian improvements through 2040 is estimated at $272.5 million.

Public Transportation

Most of the estimated costs for public transportation capital and operations were based on historical federal, state, and local funding spent within the OCARTS area between FY 2010 and FY 2014. Information was gathered from the Federal Transit Administration's National Transit Database, as well as from the Central Oklahoma Transportation and Parking Authority (COTPA), Cleveland Area Rapid Transit (CART), the City of Edmond (Citylink), and the Transit Programs Division of the Oklahoma Department of Transportation (ODOT). This information was used to develop an annual estimate that was projected over the 30-year plan period. In addition, *new* funding was included for the construction and operation of the downtown modern streetcar, which was approved by Oklahoma City voters in December 2009 as part of MAPS 3, and anticipated to begin operation in 2018.

Since federal law requires financial constraint for metropolitan transportation plans, the MPO is unable to assume higher funding levels for public transportation beyond those described above. Except for implementation of the downtown Oklahoma City modern streetcar, this results in the level of transit service remaining relatively static in upcoming years. Additional revenue sources dedicated to transit would have to be identified and deemed reasonably available in order to include a more extensive regional public transportation system in the affordable metropolitan long-range plan.

For these reasons, estimated transit costs are considered to be generally equal to the projected transit revenues, shown in the revenue table in this memorandum. Therefore, the total Encompass 2040 transit costs are estimated at nearly $1.3 billion.

Funds for operating interstate Amtrak passenger rail service between downtown Oklahoma City and Ft. Worth, Texas are provided by the Texas and Oklahoma State Departments of Transportation and the Federal Railroad Administration, and are not included in the Encompass 2040 costs and revenues.

Goods Movement by Truck, Rail and Air

Within the OCARTS area, goods are moved by truck, rail and air. All of these modes for transporting goods are reliant upon the street and highway network for a seamless trip from the manufacturer to the customer. Therefore, the costs for improving access to airport terminals, rail yards, and warehouses are reflected in the street and highway alternates. Costs for upkeep and improvement of rail tracks are the responsibility of the owning entity. Long-range planning and costs for improving access and mobility within the "fence line" of area airports are the responsibility of the airport administrators and are reflected in their airport comprehensive plans and budgets.

The following tables provide the estimated costs of the Encompass 2040 street and highway alternates:

ESTIMATED COST TO IMPLEMENT ALTERNATE 1 OF ENCOMPASS 2040

Functional Classification	Linear Miles	Lane Miles	Estimated Costs[a]						
			Construction	Maintenance	Right-of-Way	Major Interchanges[b]	Other Improv.[c]	Bridges	Totals
Turnpikes[d]	59	252	27,506,944	171,905,922		15,113,169			214,526,035
Interstates & Freeways	235	1,163	237,933,418	639,650,000		176,525,202			1,054,108,620
Principal Arterials	332	1,324	36,497,620	708,646,020					745,143,640
Minor Arterials	1,672	4,086	255,858,339	2,155,799,058					2,411,657,397
Collectors	1,479	3,210	81,250,041	1,692,592,180					1,773,842,221
Street & Highway Total	3,777	10,035	639,046,362	5,368,593,180	N/A	191,638,371	N/A	N/A	6,199,277,913
Transit - Current Service									1,037,094,247
Alternate 1 Total									7,236,372,160

[a] Individual project costs were inflated by 10 percent for short-term projects (2010-2020), 30 percent for medium-term projects (2021-2030), and 50 percent for long-term projects (2031-2040)

[b] Turnpike interchange is at Turner TP near Peebly Rd. Other interchanges include Broadway Ext./Memorial Rd., I-235/I-44 (part), I-35/Lindsey St. (Norman), I-35/Main St. (Norman), I-35/SH-9 (South half, Norman)

[c] Includes intersection improvements, traffic signals

[d] Construction cost is for Kilpatrick TP widening to 6 lanes and cable barriers between MacArthur and Eastern, May Ave. ramps, and Eastern Ave. off-ramp signal

ESTIMATED COST TO IMPLEMENT ALTERNATE 2 OF ENCOMPASS 2040

Functional Classification	Linear Miles	Lane Miles	Estimated Costs[a]						
			Construction	Maintenance	Right-of-Way	Major Interchanges[b]	Other Improv.[c]	Bridges[d]	Totals
Turnpikes[e]	85	364	549,506,944	171,905,922		15,113,169			736,526,035
Interstates & Freeways	235	1,206	965,667,189	691,594,077	62,050,000	534,825,202	30,000,000	184,760,000	2,468,896,468
Principal Arterials	332	1,348	192,102,501	647,040,000			7,600,000		846,742,501
Minor Arterials	1,672	4,362	665,620,633	2,090,803,030			15,000,000		2,771,423,663
Collectors	1,479	3,368	335,466,840	1,616,640,000			5,000,000		1,957,106,840
Street & Highway Total	3,803	10,648	2,708,364,107	5,217,983,029	62,050,000	549,938,371	57,600,000	184,760,000	8,780,695,507
Transit - Current Service + Streetcar[f]									1,278,549,300
Bicycle and Pedestrian[g]									272,513,112
Alternate 2 Total									10,331,757,919

[a] Individual project costs were inflated by 10 percent for short-term projects (2010-2020), 30 percent for medium-term projects (2021-2030), and 50 percent for long-term projects (2031-2040)

[b] Additional major interchanges include I-35/SH-33, I-35/Waterloo Rd., I-35/I-240, I-40/Frisco Rd., I-40/I-44/I-240, I-40/I-35, I-40/Douglas, I-40/Choctaw Rd., I-44/I-35

[c] Includes system wide operational improvements through Traffic System Management (TSM), Travel Demand Management (TDM), and Intelligent Transportation Systems (ITS)

[d] Includes interstate bridge widening projects identified by the Oklahoma Department of Transportation (ODOT)

[e] Construction costs include Kilpatrick Turnpike extension from SW 15th to Airport Rd., NE OK County Loop from Turner TP to I-40, and H.E. Bailey TP upgrade

[f] Transit Costs include current services levels, plus capital and operating for the downtown OKC streetcar and Santa Fe Intermodal Hub

[g] Costs include bicycle & pedestrian components submitted with Alternate 2 roadway projects plus an estimated $145 million to implement regional trails plans.

ESTIMATED COST TO IMPLEMENT ALTERNATE 3 OF ENCOMPASS 2040

Functional Classification	Linear Miles	Lane Miles	Estimated Costs[a]						
			Construction	Maintenance	Right-of-Way	Major Interchanges[b]	Other Improv.[c]	Bridges[d]	Totals
Turnpikes[e]	85	364	549,506,944	171,905,922		15,113,169			736,526,035
Interstates & Freeways	235	1,206	965,667,189	691,594,077	62,050,000	534,825,202	30,000,000	184,760,000	2,468,896,468
Principal Arterials	332	1,348	192,102,501	647,040,000			7,600,000		846,742,501
Minor Arterials	1,672	4,362	665,620,633	2,090,803,030			15,000,000		2,771,423,663
Collectors	1,479	3,368	335,466,840	1,616,640,000			5,000,000		1,957,106,840
Street & Highway Total	3,803	10,648	2,708,364,107	5,217,983,029	62,050,000	549,938,371	57,600,000	184,760,000	8,780,695,507
Transit - Current Service + Streetcar[f]									1,278,549,300
Regional Transit[g]									2,362,339,969
Bicycle and Pedestrian[h]									272,513,112
Alternate 3 Total									12,694,097,888

[a] Individual project costs were inflated by 10 percent for short-term projects (2010-2020), 30 percent for medium-term projects (2021-2030), and 50 percent for long-term projects (2031-2040)

[b] Additional major interchanges include I-35/SH-33, I-35/Waterloo Rd., I-35/I-240, I-40/Frisco Rd., I-40/I-44/I-240, I-40/I-35, I-40/Douglas, I-40/Choctaw Rd., I-44/I-35

[c] Includes system wide operational improvements through Traffic System Management (TSM), Travel Demand Management (TDM), and Intelligent Transportation Systems (ITS)

[d] Includes interstate bridge widening projects identified by the Oklahoma Department of Transportation (ODOT)

[e] Construction costs include Kilpatrick Turnpike extension from SW 15th to Airport Rd., NE OK County Loop from Turner TP to I-40, and H.E. Bailey TP upgrade

[f] Transit Costs include current services levels, plus capital and operating for the downtown OKC streetcar and Santa Fe Intermodal Hub

[g] Regional Transit includes capital and operating costs for commuter rail, bus rapid transit, and enhanced bus recommended by the Fixed Guideway Study & Commuter Corridors Study. Transit mode share is 1%

[h] Costs include bicycle & pedestrian components submitted with Alternate 2 roadway projects plus an estimated $145 million to implement regional trails plans.

PROJECT COST INFLATION ASSUMPTIONS

Current federal transportation law—Fixing America's Surface Transportation Act (FAST Act)—requires consideration of inflation in the development of metropolitan transportation plans. Specifically, revenues and cost estimates that support the metropolitan plan must reflect "year of expenditure" (YOE) dollars. This is challenging since it is difficult to estimate future inflation and to know with certainty when each planned project will be implemented. In order to address the YOE inflation requirement, ACOG staff developed the following methodology.

Project cost estimates were inflated using an estimated growth rate of two percent per year as the basis, which equates to a 60 percent increase over the life of the 30-year plan. The two percent annual increase was based on national economic indicators which have shown a gradual downward trend over the past five years. According to the U.S. Bureau of Labor Statistics and Bureau of Economic Analysis, the Consumer Price Index reflected an average annual growth rate of approximately 1.68 percent between 2010 and 2015 (ranging from 3.16 percent between 2010 and 2011 to 0.12 percent between 2014 and 2015). Staff rounded the 1.68 percent average growth rate up to 2.0 percent as its estimated annual rate of growth throughout the remainder of the plan period.

Since plan implementation and maintenance will be spread out over the 30-year life of the plan, three separate inflation bands were assumed in order to create year-of-expenditure project cost estimates. Base year costs were inflated by 10 percent for projects expected to be constructed in the short-term (2010-2020), 30 percent for projects expected to be constructed in the medium-term (2021-2030), and 50 percent for long-term projects (2031-2040). The amount of inflation (10, 30 or 50 percent) correlates to the 10-year period in which construction is estimated to occur, as provided by the state or local government project sponsor. The inflation estimates used for the short, medium, and long-term bands reflect the average, or mid-point, of inflation for the respective 10-year period.

THE AFFORDABLE PLAN

The following table provides an estimated funding distribution by mode among the total 30-year revenue projection and the estimated costs of the recommended Encompass 2040 Plan Alternate. This breakdown was developed for planning purposes only and is consistent with historical trends and federal program guidelines. It is intended to ensure that all modes are considered in the Plan's financial capacity analysis, and reflects the fact that revenues for roadway and transit purposes are generally provided separately at the federal level through programs[3] administered by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA).

The following information reveals that the recommended Encompass 2040 metropolitan transportation plan is financially feasible by demonstrating that the estimated costs to implement the Plan's recommendations will not exceed the estimated revenues reasonably available to the OCARTS area during the 30-year plan period.

[3] It should be noted that the FAST Act allows a portion of some categories of federal funds to be flexed between highway and transit purposes; however, this has traditionally not been a significant amount.

ANTICIPATED REVENUES AND COSTS FOR THE
ENCOMPASS 2040 RECOMMENDED PLAN - ALTERNATE 2

Mode	Estimated Percent	Projected Revenues	Estimated Plan Costs	Difference
Streets and Highways	85.1%	$8,869,545,000	$8,780,695,507	$88,849,493
Transit (Urban & Rural)	12.3%	$1,278,549,300	$1,278,549,300	$0
Bicycle and Pedestrian*	2.6%	$275,220,700	$272,513,112	$2,707,588
Total	**100.0%**	**$10,423,315,000**	**$10,331,757,919**	**$91,557,081**

ACTION REQUESTED:

Consider recommending that the ITPC approve the financial plan for Encompass 2040.

ACOG

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MEMORANDUM

DATE: July 19, 2016

TO: Intermodal Transportation Technical Committee

FROM: Jennifer Sebesta, Associate Planner
Transportation & Planning Services

SUBJECT: Recommended Encompass 2040 Plan Transportation Alternate Network

INFORMATION:

Over the past six months, ACOG staff, in close coordination with member entity staff, has developed and tested alternate street and highway networks in order to prepare the region's next long-range transportation plan, Encompass 2040. Three alternates were developed and modeled, and two alternates are financially feasible for 2040 (Alternate 1 and Alternate 2). For reference, following is a description of the base network and 2040 transportation alternates:

Base Network:

- **2010 Base Year Network:** Includes all regional streets and fixed transit routes as they existed in the base year of 2010, and the model attempts to replicate transportation patterns using base year network characteristics and land use patterns.

Transportation Alternates:

- **Alternate 1 – Present + Committed Network (No Build & Maintenance):** Includes all existing roadways and transit routes with improvements implemented since 2010, as well as those for which funding is committed through December 2016. The network also includes portions of the Oklahoma Department of Transportation's 8-Year Construction Work Plan. (Financially Feasible)

- **Alternate 2 – Improved Transportation Network (Submitted 2040 Projects):** Includes all existing roadways and transit routes, the Present + Committed Network (Alternate 1), as well as future transportation improvements. These improvements include transportation projects submitted during the Encompass 2040 Call for Projects, long-range projects from the Oklahoma Department of Transportation, the two new OCARTS area turnpikes proposed by the Oklahoma Turnpike Authority, downtown Oklahoma City modern streetcar, and gap projects identified by ACOG staff. (Financially Feasible)

A list of projects included in Alternate 2 can be viewed here:
http://www.acogok.org/wp-content/uploads/2016/06/Encompass-2040_Alt_Two_Projects.pdf

For additional reference, a map identifying the projects in Alternate 2 is on the next page.

- **Alternate 3 – Improved Transportation Network + Regional Transit:** Includes all existing roadways and transit routes, the Present + Committed Network (Alternate 1), future transportation improvements (Alternate 2), as well as regional commuter rail, bus rapid transit, and supportive bus routes, as identified by the Commuter Corridor Study and 2005 Regional Fixed Guideway Study. (Illustrative)

As you may recall, the alternates were modeled using two potential land use patterns for the region in 2040 – Scenario 1 (Historical Trend) and Scenario 2 (Nodal Growth):

- **Scenario 1 (Historical Trend):** Continues similar development patterns of the past with no new zoning initiatives
- **Scenario 2 (Nodal Growth):** Encourages infill, nodal and downtown development in each community to support future regional transit

The 2040 land use scenarios have demonstrated that the region has potential to gain more transportation efficiencies if it develops in a pattern like Scenario 2, however this pattern is dependent on future land use decisions made at the local level.

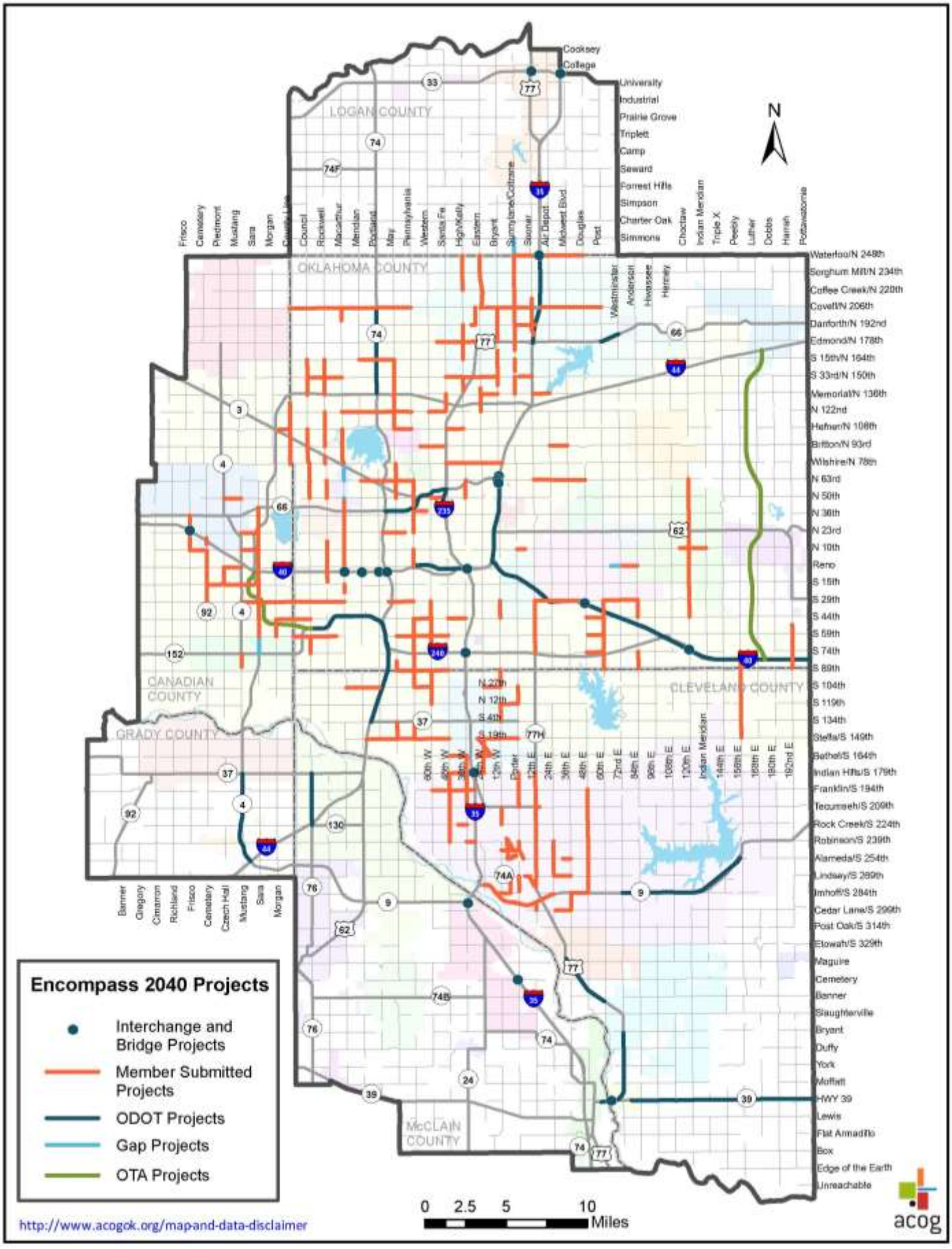
At the July meeting, ACOG staff will present the air quality analysis results (EPA MOVES) and estimated costs of the alternates and recommend selecting transportation Alternate 2 (Scenario 1) as the preferred alternate for Encompass 2040. A summary of the model outputs for each alternate network, by scenario, is provided in the table provided at the end of this memorandum.

Next steps will include developing the Encompass 2040 Draft Plan Summary, seeking public review and comment starting in September, and final plan adoption in October.

ACTION REQUESTED:

Consider recommending that the ITPC select the Alternate 2 Network for inclusion in the Encompass 2040 metropolitan transportation plan, and seek public review and comment.

Encompass 2040 Alternate 2 Projects



Travel Demand Model Run Outputs

TDM Networks Evaluation[1]	2010 Base Network	Alternate 1 Scenario 1	Alternate 1 Scenario 2	Alternate 2 Scenario 1[7]	Alternate 2 Scenario 2	Alternate 3 Scenario 1	Alternate 3 Scenario 2
Demographic Data							
Population	1,142,338	1,595,168	1,595,168	1,595,168	1,595,168	1,595,168	1,595,168
Employment	601,839	875,402	875,402	875,402	875,402	875,402	875,402
Daily Transportation Demand							
Vehicle Miles of Travel	30,266,000	45,299,000	44,321,000	46,550,000	45,517,000	45,997,000	44,927,000
Vehicle Miles of Travel Per Person	26	28	28	29	29	29	28
Vehicle Hours of Travel	853,000	1,503,000	1,474,000	1,415,000	1,389,000	1,398,000	1,371,000
Vehicle Trips	4,165,000	5,896,000	5,976,000	5,858,000	5,928,000	5,788,000	5,851,000
Transit Ridership	15,700	22,800	26,200	22,900	26,600	91,100	108,900
System Performance							
Congested Road Miles	289	647	626	308	297	295	290
Average Overall Speed (mph)	35	30	30	33	33	33	33
Average Freeway Speed (mph)	45	40	40	44	44	44	44
Average Arterial Speed (mph)	35	25	25	29	29	29	29
Average Trip Length (miles)	7.27	7.68	7.42	7.95	7.68	7.95	7.68
Average Trip Length (minutes)	12.29	15.3	14.8	14.49	14.06	14.49	14.06
Daily Hours of Delay	138,000	454,000	425,000	366,000	340,000	349,000	322,000
Delay per Trip (minutes)	1.99	4.62	4.27	3.75	3.45	3.62	3.31
Daily Crashes[2]	76	68	67	58	56	57	55
Environmental[3]							
Carbon Monoxide Emissions (tons/day)	564	116	113	111	109	110	107
Hydrocarbon Emissions (tons/day)	97	11	11	10	10	10	10
Nitrogen Oxide Emissions (tons/day)	107	16	16	15	15	15	15
Daily Fuel Consumption (gallons)[4,5]	1,211,000	824,000	806,000	787,000	770,000	778,000	760,000
Estimated Cost[6]							
Street & Highway Construction	-	830,684,733	830,684,733	3,562,712,478	3,562,712,478	3,562,712,478	3,562,712,478
Street & Highway Maintenance	-	5,368,593,180	5,368,593,180	5,217,983,029	5,217,983,029	5,217,983,029	5,217,983,029
Transit	-	1,037,094,247	1,037,094,247	1,278,549,300	1,278,549,300	3,640,889,269	3,640,889,269
Bicycle & Pedestrian	-	-	-	272,513,112	272,513,112	272,513,112	272,513,112
Total[8]	-	7,236,372,160	7,236,372,160	10,331,757,919	10,331,757,919	12,694,097,888	12,694,097,888

1 Refer to alternte network assumptions matrix for additional information

2 2040 crashes were based on a 42% decline in crash rate from 1980 to 2010

3 Vehicle emissions were calculated using EPA MOVES2014a model

4 Fuel consumption was based on current 25 miles per gallon and EPA requirement of 54.5 miles per gallon by 2025

5 For Alternate 2 and Alternate 3, an additional 7% was removed because of ITS

6 Refer to financially feasibility documents for additional information on estimated plan costs

7 Preferred Alternate for Encompass 2040

8 Estimated total Encompass 2040 revenue is $10,423,315,000