# SEMCOG Public Notice

**For immediate release:** June 26, 2023
**Contact: SEMCOG** Information Center, 313-324-3330

**SEMCOG invites public comment on an amendment to the FY 2023-2026 Transportation Improvement Program and the 2045 Regional Transportation Plan**

SEMCOG, the Southeast Michigan Council of Governments, announces the public comment period for an amendment to the FY 2023-2026 Transportation Improvement Program (TIP) and the 2045 Regional Transportation Plan (RTP). The RTP is a long-range vision and strategy that directs investment in the regional transportation system. The TIP is a list of specific projects which implement the policies of the RTP and are recommended by cities, villages, county road agencies, transit providers, and the Michigan Department of Transportation (MDOT) over a four-year period. SEMCOG's Executive Committee makes the final approval of the TIP project list.

**Background**
The 2023 Summer Amendment revises 91 phases in the TIP:

- 53 additions
- 10 deletions
- 14 cost changes
- Two scope changes
- Five changes to cost and scope
- Seven moved to future TIP

This amendment, as proposed, primarily pertains to changes in projects related to pavement and bridge condition.

There are a number of proposed cost adjustments to General Program Accounts (GPA), which are used to group smaller, routine projects by type. Federal regulation 23 CFR 450.324 (f) states projects that are not considered to be of appropriate scale for individual identification in a given program year may be grouped by function, work type, and/or geographic area using the applicable classifications under 23 CFR 771.117(c) and (d) and/or 40 CFR part 93. When all the projects within a GPA total 125% or more of that GPA's currently-approved limit, the GPA must be amended to reflect this change in size.
The proposed changes to two GPAs can be found in the table below and with the other amendment materials on SEMCOG's TIP webpage.

| FY | Type | GPA Name | Previously Approved | New Cost |
|---|---|---|---|---|
| 2023 | Local | Traffic Operations & Safety | $31,273,526 | $40,929,570 |
| 2025 | Local | Road | $57,135,192 | $75,923,850 |

**Amendment evaluations**
The amendment requires all proposed projects undergo a series of evaluations, including identification of financial resources, an air quality conformity analysis, an environmental justice analysis, an environmental sensitivity analysis, an assessment for consistency with the regional Intelligent Transportation System (ITS) architecture and Congestion Management Process, and a public comment process.

Project details and evaluation results are available on SEMCOG's TIP webpage or by contacting SEMCOG's Information Center at 313-324-3330.

**How to comment**
Please address written comments to SEMCOG Information Center, 1001 Woodward Avenue, Suite 1400, Detroit, MI 48226; send faxes to 313-961-4869; call 313-324-3330, or e-mail InfoCenter@semcog.org. Comments can also be made during the following in-person meetings, in which the amendment will be considered:

- Transportation Coordinating Council, Thursday, July 20, 2023 at 9:30 a.m., SEMCOG Information Center, 1001 Woodward Avenue, Suite 1400, Detroit, MI 48226;
- Executive Committee, Thursday, July 27, 2023, 1 p.m., SEMCOG Information Center, 1001 Woodward Avenue, Suite 1400, Detroit, MI 48226.

**Coverage of this notice**
Public notice of public participation activities and time established for public review of, and comments on, the TIP will satisfy the Program of Projects (POP) requirements of the Federal Transit Administration (FTA).

**SEMCOG**

Transportation Coordinating Council

Lev Wood, Chairperson
Councilmember, City of Grosse Pointe Farms

ACTION REQUESTED

DATE: July 27, 2023

TO: Executive Committee

SUBJECT: 2023 Summer Amendment to the 2023-2026 Transportation Improvement Program (TIP) for Southeast Michigan

**Summary of action requested**

The Executive Committee is requested to approve an amendment to the 2023-2026 *Transportation Improvement Program* for Southeast Michigan (TIP) and the 2045 *Regional Transportation Plan* (RTP).

**Background**

The RTP is a long-range vision and strategy document that directs investment in the regional transportation system. The TIP is a list of specific projects selected from the RTP for implementation by cities, villages, county road agencies, transit providers, and the Michigan Department of Transportation over a four-year period.

The 2023 Summer Amendment revises 73 phases in the TIP:

- 35 additions
- 10 deletions
- 14 cost changes
- 2 scope changes
- 5 changes to cost and scope
- 7 moved to future TIP

All revisions in the 2023 Summer TIP Amendment will be incorporated in the 2045 RTP. This amendment, as proposed, primarily pertains to changes in projects related to pavement and bridge condition.

There are a number of proposed cost adjustments to GPAs, which are used to group smaller, routine projects by type. Federal regulation 23 CFR 450.324 (f) states projects that are not considered to be of appropriate scale for individual identification in a given program year may be grouped by function, work type, and/or geographic area using the applicable classifications under 23 CFR 771.117(c) and (d) and/or 40 CFR part 93. The proposed changes to 2 GPAs can be found in the table below and with the other amendment materials on SEMCOG's TIP webpage.

| FY | Type | GPA Name | Pct. Programmed | Previously Approved | New Cost |
|---|---|---|---|---|---|
| 2023 | Local | Traffic Operations & Safety | 123.67 | $31,273,526 | $40,929,570 |
| 2025 | Local | Road | 132.88 | $57,135,192 | $75,923,850 |

**Amendment evaluations**

The amendment requires all proposed projects undergo a series of evaluations – identification of financial resources, air quality conformity analysis, environmental justice analysis, environmental sensitivity review, assessment for consistency with the regional Intelligent Transportation System (ITS) architecture, and a public comment process. The results of these evaluations are summarized below:

- The fiscal constraint analysis indicates the RTP and TIP remain fiscally constrained.
- An updated air quality conformity analysis was performed for this amendment since 5 of the proposed projects were designated as *not exempt* from the requirement to determine conformity by the Michigan Transportation Conformity Interagency Workgroup (MITC-IAWG). The results of the analysis indicated that the seven-county region of SEMCOG demonstrated conformity for both PM2.5 and ozone for this amendment.
- The environmental sensitivity review summarizes possible impacts of RTP projects on environmentally sensitive resources.
- The environmental justice analysis indicates impacts related to implementation of the RTP (including TIP projects) remain balanced across the region.
- The projects are consistent with the Regional Intelligent Transportation Systems architecture.
- The projects are consistent with the regional Congestion Management Process.

The public comment period for the amendment officially began on June 26, 2023 and will end with Executive Committee action on July 27, 2023.

**Action requested**

The Executive Committee is requested to approve an amendment to the 2023-2026 *Transportation Improvement Program for Southeast Michigan and the 2045 Regional Transportation Plan for Southeast Michigan*.

**Executive Committee Resolution**
**to Amend the FY 2023-2026 Transportation Improvement Program for Southeast Michigan and the 2045 Regional Transportation Plan for Southeast Michigan**

WHEREAS, the Transportation Improvement Program (TIP) and Regional Transportation Plans (RTP) support this vision:

> *All the people of Southeast Michigan benefit from a connected, thriving region of small towns, dynamic urban centers, active waterfronts, diverse neighborhoods, premiere educational institutions, and abundant agricultural, recreational, and natural areas.*

WHEREAS, SEMCOG is responsible for developing a long-range regional transportation plan and a Transportation Improvement Program that funds projects to implement the plan;

WHEREAS, the 2045 RTP was developed pursuant to the transportation planning provisions of Title 23 of United States Code (USC) Section 134 and Title 49 USC Section 5303;

WHEREAS, the 2045 RTP requires periodic updates to include projects not fully developed at the time the 2045 RTP was originally adopted, to take advantage of new funding and reflect changing priorities;

WHEREAS, SEMCOG is required to develop amendments to the FY 2023-2026 TIP pursuant to Title 23 of the United States Code (USC) Section 134;

WHEREAS, the 2045 RTP and FY 2023-2026 TIP were analyzed in accordance with 40 CFR 51 for air quality conformity and found not to exceed present and future emission budgets in all analysis years;

WHEREAS, the amendments to the FY 2023-2026 TIP are consistent with the 2045 RTP policies, were financially constrained to identified funding resources, and the amendment process actively encouraged public and agency review and comment;

WHEREAS, SEMCOG certifies that all projects funded in total or in part with State Transportation Economic Development Fund (TEDF) Category C funds are eligible for funding under PA 231 of 1987, as amended, and meet the goals and objectives of the program;

WHEREAS, the 2045 RTP, as amended, remains consistent with regional goals and objectives and federal planning factors and were examined for potential impacts on environmentally sensitive resources;

WHEREAS, impacts resulting from the FY 2023-2026 TIP as amended, are balanced across the region, so that no one population bears a disproportionate negative impact, and the benefits are shared across the region;

2023 Summer Amendment to the 2023-2026 Transportation Improvement Program for Southeast Michigan and the 2045 Regional Transportation Plan for Southeast Michigan

WHEREAS, SEMCOG has determined that the amendment to the 2045 RTP and the FY 2023-2026 TIP conform to the State Implementation Plan for Air Quality as required by provisions of Title 40 Code of Federal Regulations (CFR) 51 and Title 23 CFR 450;

NOW THEREFORE BE IT RESOLVED, this 27th day of July 2023, THAT the Executive Committee of SEMCOG, the Southeast Michigan Council of Governments, approves the amendment of projects to the 2045 RTP and FY 2023-2026 TIP;

AND BE IT FURTHER RESOLVED THAT the Executive Committee of SEMCOG submits this amendment to the 2045 RTP and the FY 2023-2026 TIP to the Michigan Department of Transportation, as designee for the Governor's Office of the State of Michigan, for review and transmittal to the Michigan Department of Environment, Great Lakes, and Energy; Michigan Department of Natural Resources; Federal Highway Administration; Federal Transit Administration; and U.S. Environmental Protection Agency.

ATTEST: _____ DATE: July 27, 2023

Committee Clerk

**DRAFT SEMCOG Summer 2023 Amendment List**
**2023-2026 Transportation Improvement Program (TIP)**
**Executive Committee, July 27, 2023**
**Revised July 3, 2023**

| Line Item | Job no. | Phase | Fiscal Year | County | Responsible Agency | Project Name | Limits | Length (miles) | Primary work Type | Project Description | Advance Construct | AC Budget | ACC Years | Federal Budget | Federal Fund Source | State Budget | Local Budget | Total Phase Cost | Amendment Type | Air Quality | RTP Goal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 110611 | CON | 2024 | Wayne | MDOT | OLD-14 | Newburgh Road to Market Street | 0.393 | Reconstruction | Ann Arbor Rd (Old M-14) and Plymouth from Newburgh to Market will be retaining the existing lane configuration (typical 4 lane with occasional turn lane). Minor lane widening to bring up to standard of 12' lanes from existing 11' lanes. The approaches of Newburgh Rd to Old M-14 will have widening to include a right turn lane. The length of widening on Newburgh Rd in each direction north and south of Old M-14 is approximately 350'. | No | | | $8,471,475 | NH | $1,643,709 | $234,816 | $10,350,000 | Cost | Exempt | 1 |
| 2 | 110678 | CON | 2025 | St. Clair | MDOT | M-29 | County Line Road to Church Road | 1.878 | Road Rehabilitation | Milling and two course asphalt resurfacing | No | | | $9,690,390 | NH | $2,148,815 | $0 | $11,839,205 | Move to Future TIP | Exempt | 1 |
| 3 | 113501 | CON | 2026 | Washtenaw | MDOT | US-23 BR | I-94 BL to M-14 | 1.239 | Reconstruction | Reconstruct within the existing lane configurations without widening. possible Asphalt Stabilized Crack Relief Layer (ASCRL) in sections. | No | | | $18,498,100 | NH | $3,589,162 | $512,738 | $22,600,000 | Move to Future TIP | Exempt | 1 |
| 4 | 120052 | CON | 2024 | Wayne | MDOT | US-12 | Haggerty Road to Pershing Street | 2.545 | Road Rehabilitation | Milling and Two Course Asphalt Resurfacing | No | | | $25,782,750 | NH | $5,717,250 | $0 | $31,500,000 | Cost | Exempt | 1 |
| 5 | 200202 | CON | 2023 | Washtenaw | MDOT | US-12 | US-12 from west of Platt Rd to west of US-23 interchange | 1.023 | Traffic Safety | Operational improvements | No | | | $14,119,125 | CPM,VRU | $3,130,875 | $0 | $17,250,000 | Cost | Exempt | 2 |
| 6 | 201581 | CON | 2025 | Wayne | MDOT | M-3 (Randolph) | M-3 (Randolph) at Larned, Congress, Lafayette, and Monroe. | 0 | Traffic Safety | Signal Modernization with Interconnect | No | | | $2,687,815 | CPMG | $0 | $0 | $2,687,815 | Delete | Exempt | 2 |
| 7 | 202543 | CON | 2023 | Wayne | MDOT | I-94 E | from east of X01 of 82025 to Barrett Avenue, City of Detroit | 1.019 | Reconstruction | Major widening as part of the on-going I-94 Modernization | No | | | $145,693,000 | NHFP,ST | $32,307,000 | $0 | $178,000,000 | Cost, Scope | Not Exempt | 1 |
| 8 | 204305 | CON | 2024 | Oakland | MDOT | I-696 | Lahser Road to Dequindre Road | 9.896 | Road Rehabilitation | Concrete Inlay | No | | | $0 | RBMP | $243,000,000 | $0 | $243,000,000 | Scope | Exempt | 1 |
| 9 | 204309 | CON | 2024 | Wayne | MDOT | M-39 | McNichols Road to Plymouth Road | 2.951 | Reconstruction | Concrete reconstruction of road and ramps within existing roadway | No | | | $46,818,200 | NHFP,NH | $10,381,800 | $0 | $57,200,000 | Move to Future TIP | Exempt | 1 |
| 10 | 205199 | NI | 2023 | Wayne | Detroit, City of | Transit Capital | DDOT Service Area | 0.000 | SP1206-Bus terminal facility improvements | Purchase Replacement Buses | No | | | $2,747,339 | 5339 | $686,835 | $0 | $3,434,174 | Add | Exempt | 3 |
| 11 | 205628 | CON | 2026 | Monroe | MDOT | I-75 | Ready Road over I-75 | 0.000 | Bridge Replacement | Bridge Replacement | No | | | $6,467,922 | BFPI,BOI | $718,658 | $0 | $7,186,580 | Move to Future TIP | Exempt | 1 |
| 12 | 207357 | CON | 2023 | Saginaw,Lapeer,Bay,Genesee,St. Clair | MDOT | Regionwide | Trunkline routes in St Clair County | 3.554 | Traffic Safety | Special pavement marking application on trunklines in Bay Region | No | | | $148,244 | HSIP | $16,472 | $0 | $890,350 | Delete | Exempt | 2 |
| 13 | 207373 | CON | 2023 | Jackson,Ingham,Lenawee,Livingston | MDOT | Regionwide | All trunkline routes in University SEMCOG counties | 1.471 | Traffic Safety | Special pavement marking application on trunklines in University Region | No | | | $183,938 | HSIP | $20,438 | $0 | $545,000 | Delete | Exempt | 2 |
| 14 | 208228 | CON | 2023 | Oakland | MDOT | I-75BL (Square Lake Rd) | M-1 to I-75 Interchange Ramps | 1.534 | Reconstruction | Reconstruction of I-75BL (Square Lake Rd), ramp reconstruction,one course overlay of the ramps to/from Square Lake Rd to EB I-75 BL, traffic signal modernization, drainage improvements and other misc. concrete pavement repairs. | No | | | $20,462,500 | NH | $3,970,313 | $567,187 | $25,000,000 | Cost | Exempt | 1 |
| 15 | 208611 | CON | 2024 | Wayne | MDOT | M-39 | Plymouth Road to Ford Road | 3.325 | Reconstruction | Reconstructing road and ramps within existing roadway | No | | | $45,836,000 | NH | $10,164,000 | $0 | $56,000,000 | Move to Future TIP | Exempt | 1 |
| 16 | 208665 | CON | 2023 | Washtenaw | MDOT | I-94 | Parker to M-14 | 5.194 | Road Capital Preventive Maintenance | Milling and single course overlay | No | | | $11,700,000 | IM | $1,300,000 | $0 | $13,000,000 | Cost | Exempt | 1 |
| 17 | 208697 | CON | 2025 | St. Clair | MDOT | M-29 | Church Road to Palms Road | 3.627 | Road Rehabilitation | Milling and two course asphalt resurfacing | No | | | $15,075,460 | ST | $3,342,940 | $0 | $18,418,400 | Move to Future TIP | Exempt | 1 |
| 18 | 209835 | CON | 2023 | Macomb | Macomb County | North River Road | North River Road over Catfish Channel Str# 6320 - Macomb County | 0 | Bridge Replacement | Bridge Replacement | No | | | $4,046,324 | BO | $0 | $1,011,580 | $5,057,904 | Cost | Exempt | 1 |
| 19 | 209886 | CON | 2026 | St. Clair,Macomb | MDOT | I-94 | Adair Rest Area | 0.1 | Roadside Facilities - Improve | Rest Area Facility Improvement | No | | | $0 | NH | $0 | $0 | $0 | Delete | Exempt | 1 |
| 20 | 210044 | CON | 2025 | Monroe | MDOT | I-275 | from I-75 to Wayne/Monroe County Line | 7.283 | Road Capital Preventive Maintenance | Milling and single course overlay | No | | | $12,600,000 | IM | $1,400,000 | $0 | $14,000,000 | Cost, Scope | Exempt | 1 |
| 21 | 210078 | CON | 2023 | Macomb | MDOT | M-53 | 18 Mile Road to 27 Mile Road | 10.043 | Road Rehabilitation | Milling and Two Course Asphalt Resurfacing | No | | | $45,324,438 | NH | $10,050,563 | $0 | $55,375,000 | Delete | Exempt | 1 |
| 22 | 210081 | CON | 2025 | Oakland | MDOT | M-150 | M-59 to Avon Road | 2.781 | Road Rehabilitation | Milling and Two Course Asphalt Resurfacing | No | | | $15,510,604 | NH | $3,009,503 | $429,929 | $18,950,036 | Delete | Exempt | 1 |
| 23 | 210082 | CON | 2026 | Oakland | MDOT | M-59 | Milford Road to Pontiac Lake Road | 9.171 | Road Capital Preventive Maintenance | Milling and One Course Asphalt Overlay | No | | | $10,640,500 | NH | $2,359,500 | $0 | $13,000,000 | Cost, Scope | Exempt | 1 |
| 24 | 210089 | CON | 2025 | Macomb,Wayne | MDOT | I-94 | 13 bridges along I-94 between 8 Mile Road and 11 Mile Road in Macomb Co | 0 | Bridge Rehabilitation | Substructure repair, Railing replacement, bearing realignment, mesh panels | No | | | $8,039,700 | IM | $893,300 | $0 | $8,933,000 | Add | Exempt | 1 |
| 25 | 210324 | CON | 2025 | Wayne | MDOT | US-12 | US-12 between I-96 and Cass | 1.621 | Reconstruction | Reconfigure roadway, assume 2 lanes in each direction, work also includes bike lanes and transit lanes | No | | | $53,611,750 | NH | $10,402,218 | $1,486,032 | $65,500,000 | Cost | Not Exempt | 1 |
| 26 | 210324 | ROW | 2023 | Wayne | MDOT | US-12 | US-12 between I-96 and Cass | 1.621 | Reconstruction | Reconfigure roadway, assume 2 lanes in each direction, work also includes bike lanes and transit lanes | No | | | $81,850 | NH | $15,881 | $2,269 | $100,000 | Add | Exempt | 1 |
| 27 | 210599 | CON | 2024 | Oakland | MDOT | I-75BL (Woodward Ave Loop) | I-75 BL (Woodward Ave Loop), M-59, and US-24 BR (N Cass Ave) | 2.677 | Reconstruction | Minor widening at intersections, not widening the roadway. | No | | | $32,740,000 | NH | $6,354,769 | $905,231 | $40,000,000 | Cost | Not Exempt | 1 |
| 28 | 210745 | CON | 2024 | Oakland | Oakland County | W Silver Bell Rd | Brown-Giddings-Silverbell from Jamm Rd to Lapeer Rd (M-24) | 2.705 | Road Rehabilitation | Road Rehab | No | | | $15,074,349 | EMRP,HIPE,STU | $0 | $4,268,587 | $19,342,936 | Cost | Exempt | 1 |
| 29 | 210971 | CON | 2025 | Washtenaw | MDOT | US-23BR N | M-14 EB at Barton Drive | 0.750 | Traffic Safety | Provide free-flow on-ramp, improve the Barton Dr. off-ramp. | No | | | $11,189,475 | CM | $2,481,234 | $0 | $13,670,709 | Move to Future TIP | Exempt | 1 |
| 30 | 211179 | PE | 2023 | Macomb | MDOT | M-3 NB | Church St to Canfield Dr | 1.478 | Reconstruction | Reconstruction & Sewer Separation | No | | | $1,145,900 | NH | $254,100 | $0 | $1,400,000 | Cost, Scope | Exempt | 1 |
| 31 | 211179 | ROW | 2025 | Macomb | MDOT | M-3 NB | Church St to Canfield Dr | 1.478 | Reconstruction | construct a new storm sewer under NB Gratiot from Church St to Sandpiper through Mt. Clemens. There are no plans to add or reduce the number of lanes on Gratiot. The road would be reconstructed with the same footprint after the installation of the storm sewer. | No | | | $81,850 | NH | $18,150 | $0 | $100,000 | Scope | Exempt | 1 |

**DRAFT SEMCOG Summer 2023 Amendment List**
**2023-2026 Transportation Improvement Program (TIP)**
**Executive Committee, July 27, 2023**
**Revised June 23, 2023**

| Line Item | Job no. | Phase | Fiscal Year | County | Responsible Agency | Project Name | Limits | Length (miles) | Primary work Type | Project Description | Advance Construct | AC Budget | ACC Years | Federal Budget | Federal Fund Source | State Budget | Local Budget | Total Phase Cost | Amendment Type | Air Quality | RTP Goal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 211179 | CON | 2026 | Macomb | MDOT | M-3 NB | Church St to Canfield Dr | 1.478 | Reconstruction | construct a new storm sewer under NB Gratiot from Church St to Sandpiper through Mt. Clemens. There are no plans to add or reduce the number of lanes on Gratiot. The road would be reconstructed with the same footprint after the installation of the storm sewer. | No | | | $11,622,700 | NH | $2,577,300 | $0 | $14,200,000 | Cost, Scope | Exempt | 1 |
| 33 | 212309 | CON | 2023 | Livingston | Livingston County | E Cohoctah Road | E Cohoctah Road, Str #5824 over Cohoctah-Deerfield Drain, Livingston County | 0 | Bridge Replacement | Bridge Replacement | No | | | $2,544,000 | BRT | $477,000 | $659,000 | $3,680,000 | Cost | Exempt | 1 |
| 34 | 215013 | CON | 2025 | Washtenaw | Milan | E Michigan Ave | North St. to Dexter Street | 0.32 | Reconstruction | Full depth removal of existing HMA pavement. Spot curb removal as required. | No | | | $382,000 | STUL | $0 | $518,000 | $900,000 | Cost | Exempt | 1 |
| 35 | 215769 | ROW | 2023 | Washtenaw | MDOT | US-23 | Warren Road over over US-23 | 0 | Bridge Replacement | Bridge Replacement | No | | | $777,575 | BFP | $172,425 | $0 | $950,000 | Cost | Exempt | 1 |
| 36 | 215788 | ROW | 2023 | Washtenaw | MDOT | US-23 | Joy Road over US-23 | 0 | Bridge Replacement | Bridge Replacement | No | | | $306,938 | BFP | $68,063 | $0 | $375,000 | Cost | Exempt | 1 |
| 37 | 218427 | CON | 2025 | Wayne | MDOT | I-94 E | I-94 east of X01 82024 (Conrail RR) to west of Burns Street | 2.026 | Reconstruction | Construction extends from Conrail RR to Burns Street. The entire I-94 Burns St to Barrett Ave Segment is being designed under Job number 202543. This project number encompasses "Segment 3, Package 1b". No scope change to the I-94 Modernization project. | No | | | $291,443,295 | ST | $56,548,367 | $8,078,338 | $356,070,000 | Add | Not Exempt | 1 |
| 38 | 218445 | CON | 2026 | Oakland | Royal Oak | Rochester Rd | Rochester Rd, 13 Mile Rd to 14 Mile Rd | 1.016 | Road Rehabilitation | 3R Road Project | No | | | $1,472,616 | ST,STU | $0 | $368,154 | $1,840,770 | Add | Exempt | 1 |
| 39 | 218446 | CON | 2026 | Oakland | Oakland County | W 12 Mile Rd | 12 Mile Rd, Meadowbrook Rd to Farmington Rd | 7.564 | Road Rehabilitation | 3R Road Project | Yes | $5,644,800 | 2027 | $1,186,400 | STU | $0 | $7,352,600 | $8,539,000 | Add | Exempt | 1 |
| 40 | 218448 | CON | 2026 | Oakland | Oakland County | Pontiac Lake Rd | Pontiac Lake Rd, Margie Dr to Kingston St | 0.802 | Reconstruction | Pave Gravel, no widening | No | | | $2,800,000 | STU | $0 | $700,000 | $3,500,000 | Add | Exempt | 1 |
| 41 | 218523 | NI | 2023 | Washtenaw | Western-Washtenaw Area Value Express | Transit Capital | Areawide | 0 | 6410-5310 Projects | FY 2023 Section 5310 - capital.<br>Deleted as line item project and reprogramed into the Transit Capital GPA as 218777. | No | | | $186,841 | 5310 | $46,710 | $0 | $233,551 | Delete | Exempt | 3 |
| 42 | 218523 | NI | 2023 | Washtenaw | Western-Washtenaw Area Value Express | Transit Capital | Areawide | 0 | 6410-5310 Projects | FY 2023 Section 5310 - capital.<br>Deleted as line item project and reprogramed into the Transit Capital GPA as 218777. | No | | | $186,841 | 5310 | $46,710 | $0 | $233,551 | Add | Exempt | 3 |
| 43 | 218524 | EPE | 2023 | Oakland | MDOT | Regionwide | Metro Region | 0 | ITS Applications | Technical Support | No | | | $204,625 | ST | $45,375 | $0 | $250,000 | Add | Exempt | 2 |
| 44 | 218526 | NI | 2023 | Washtenaw | People's Express | Transit Capital | Areawide | 0 | 6410-5310 Projects | FY 2023 Section 5310 - capital.<br>Deleted as line item project and reprogramed into the Transit Capital GPA as 218778. | No | | | $48,832 | 5310 | $12,208 | $0 | $61,040 | Delete | Exempt | 3 |
| 45 | 218526 | NI | 2023 | Washtenaw | People's Express | Transit Capital | Areawide | 0 | 6410-5310 Projects | FY 2023 Section 5310 - capital.<br>Deleted as line item project and reprogramed into the Transit Capital GPA as 218778. | No | | | $48,832 | 5310 | $12,208 | $0 | $61,040 | Add | Exempt | 3 |
| 46 | 218528 | NI | 2023 | Washtenaw | People's Express | Transit Capital | Areawide | 0 | 6410-5310 Projects | FY 2023 Section 5310 - capital.<br>Deleted as line item project and reprogramed into the Transit Capital GPA as 218779. | No | | | $154,370 | 5310 | $38,592 | $0 | $192,962 | Delete | Exempt | 3 |
| 47 | 218528 | NI | 2023 | Washtenaw | People's Express | Transit Capital | Areawide | 0 | 6410-5310 Projects | FY 2023 Section 5310 - capital.<br>Deleted as line item project and reprogramed into the Transit Capital GPA as 218779. | No | | | $154,370 | 5310 | $38,592 | $0 | $192,962 | Add | Exempt | 3 |
| 48 | 218529 | NI | 2023 | Washtenaw | People's Express | Transit Capital | Areawide | 0 | 6410-5310 Projects | FY 2023 Section 5310 - capital.<br>Deleted as line item project and reprogramed into the Transit Capital GPA as 218782 | No | | | $77,185 | 5310 | $19,296 | $0 | $96,481 | Delete | Exempt | 3 |
| 49 | 218529 | NI | 2023 | Washtenaw | People's Express | Transit Capital | Areawide | 0 | 6410-5310 Projects | FY 2023 Section 5310 - capital.<br>Deleted as line item project and reprogramed into the Transit Capital GPA as 218782 | No | | | $77,185 | 5310 | $19,296 | $0 | $96,481 | Add | Exempt | 3 |
| 50 | 218688 | CON | 2025 | Wayne | Detroit | Virginia Park St | Virginia Park Street | 0.422 | Reconstruction | 0.4 miles of curb-to-curb reconstruction of historic 30-foot-wide road profile using historically appropriate stone curb and brick roadway using a combination of salvaged and new brick. Replacement of worn concrete sidewalk, driveways that front the street, update noncompliant crosswalk ramps to meet ADA standards, reconstruct inspected sewer segments requiring replacement, add areas of new shade street trees, minimal upgrades to existing site furnishings that include enhancing recently replaced historic light poles to include historically-sensitive light pole bases. A plaque in commemoration of the historical events at this location will be included. | No | | | $3,385,544 | TA | $0 | $846,386 | $4,231,930 | Add | Exempt | 1 |
| 51 | 218799 | EPE | 2025 | Oakland | MDOT | Southfield Rd | Metro Region | 0 | ITS Applications | Technical Support | No | | | $245,550 | ST | $54,450 | $0 | $300,000 | Add | Exempt | 2 |
| 52 | 218801 | EPE | 2026 | Oakland | MDOT | Southfield Rd | Metro Region | 0 | ITS Applications | Technical Support | No | | | $245,550 | ST | $54,450 | $0 | $300,000 | Add | Exempt | 2 |
| 53 | 218823 | EPE | 2024 | Oakland | MDOT | Southfield Rd | Metro Region | 0 | ITS Applications | Technical Support | No | | | $204,625 | ST | $45,375 | $0 | $250,000 | Add | Exempt | 2 |
| 54 | 218968 | CON | 2025 | Macomb | Macomb County | 21 Mile Rd | Structure 6206, 21 Mile Road over Gloed Drain | 0 | Bridge Replacement | Bridge Replacement | No | | | $1,617,000 | EAR | $0 | $404,250 | $2,021,250 | Add | Exempt | 1 |
| 55 | 218969 | CON | 2024 | Oakland | Oakland County | Oxford Rd | Safety Path from North Oxford Road to Ray Road | 1.222 | Reconstruction | Safety Path along west side of North Oxford Road from the end of the current path to Ray Road, and along the south side of Ray Road form North Oxford Road to M-24 | No | | | $374,696 | EAR | $0 | $93,674 | $468,370 | Add | Exempt | 2 |
| 56 | 218979 | CON | 2024 | Macomb | Macomb County | Metropolitan Pkwy | 16 Mile Road from Utica Road to Union Lake Road | 5.287 | Reconstruction | 16 Mile Road (Freedom Trail) reconstruction within existing roadway | No | | | $1,700,000 | EAR | $0 | $425,000 | $2,125,000 | Add | Exempt | 1 |
| 57 | 218986 | PE | 2024 | Wayne | Wayne County | Pennsylvania Rd | Pennsylvania Road | 1.004 | Reconstruction | Reconstruction | No | | | $865,775 | EAR | $0 | $216,444 | $1,082,219 | Add | Exempt | 1 |
| 58 | 218987 | CON | 2024 | Macomb | Eastpointe | E 9 Mile Rd | 9 Mile Road from Tuscany Street to I-94 | 0.991 | Reconstruction | Rebuild 9 mile within existing roadway | No | | | $4,380,000 | EAR | $0 | $1,095,000 | $5,475,000 | Add | Exempt | 1 |

**DRAFT SEMCOG Summer 2023 Amendment List**
**2023-2026 Transportation Improvement Program (TIP)**
**Executive Committee, July 27, 2023**
**Revised June 23, 2023**

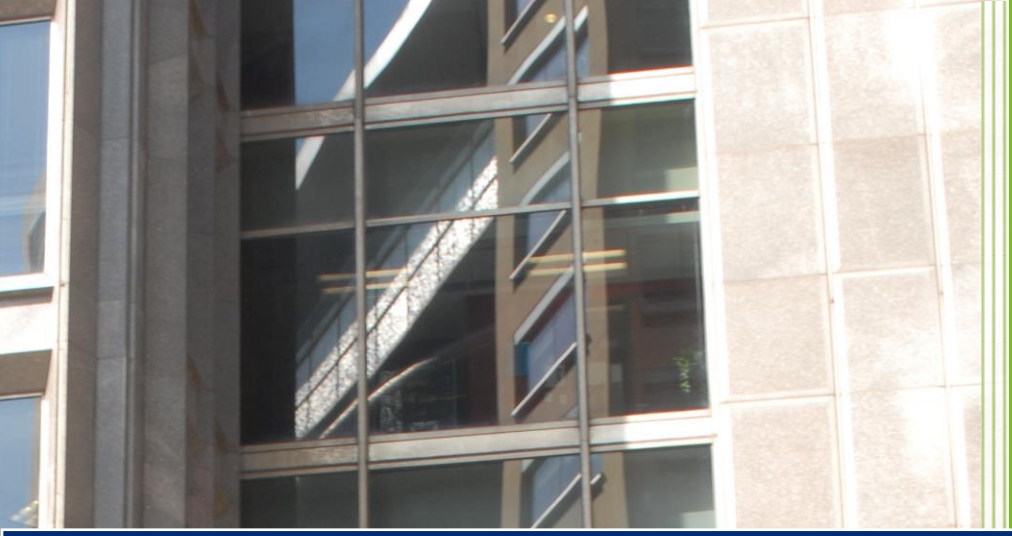
| Line Item | Job no. | Phase | Fiscal Year | County | Responsible Agency | Project Name | Limits | Length (miles) | Primary work Type | Project Description | Advance Construct | AC Budget | ACC Years | Federal Budget | Federal Fund Source | State Budget | Local Budget | Total Phase Cost | Amendment Type | Air Quality | RTP Goal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 59 | 218989 | CON | 2024 | Livingston | Livingston County | Maltby Rd | Non-Motorized Path, Murray Lake Rd on Baurer Rd to Maltby Rd at Fieldcrest | 3.68 | Roadside Facilities - Preserve | Non-Motorized Path Reconstruction | No | | | $900,000 | EAR | $0 | $225,000 | $1,125,000 | Add | Exempt | 3 |
| 60 | 219009 | CON | 2024 | Wayne | Ecorse | Southfield Rd | Southfield Road west of the city limits to east of railroad crossing | 0.483 | New Facilities | New Non-Motorized Path | No | | | $600,000 | EAR | $0 | $150,000 | $750,000 | Add | Exempt | 3 |
| 61 | 219011 | CON | 2024 | Wayne | Detroit | Hamtramck Dr | Hamtramck Drive from Joe Campau Avenue to Dequindre Cut | 3.413 | New Facilities | New Non-Motorized Path | No | | | $3,920,000 | EAR | $0 | $980,000 | $4,900,000 | Add | Exempt | 3 |
| 62 | 219013 | CON | 2024 | Monroe | Monroe County | Wm Sterling SP Access | River Raisin Heritage Trail | 0.41 | New Facilities | New Non-Motorized Path | No | | | $2,000,000 | EAR | $0 | $5,479,000 | $7,479,000 | Add | Exempt | 3 |
| 63 | 219015 | CON | 2024 | Monroe | Monroe County | Oakville Waltz Rd | Oakville Waltz Road from Palmer Road to Rawsonville Road | 0.954 | Reconstruction | Asphalt Road improvements within existing roadway | No | | | $2,000,000 | EAR | $0 | $500,000 | $2,500,000 | Add | Exempt | 1 |
| 64 | 219052 | CON | 2025 | Macomb | Macomb County | E 14 Mile Rd | 14 Mile Rd from Kelly Rd to Gratiot Ave | 1.041 | Road Rehabilitation | Rehabilitation | Yes | $1,421,869 | 2026 | $2,002,957 | ST,STU | $0 | $2,181,314 | $4,184,271 | Add | Exempt | 1 |
| 65 | 219056 | CON | 2026 | Macomb | Macomb County | Schoenherr Rd | Schoenherr from 23 Mile Rd to N of 25 Mile Rd | 2.161 | Reconstruction | Widening to add a 2 mile long center left turn lane | No | | | $5,049,692 | ST,STU | $1,604,584 | $1,119,754 | $7,774,030 | Add | Not Exempt | 1 |
| 66 | 219141 | CON | 2023 | Oakland | Pontiac | Bagley | Bagley Street from Golf Drive to Orchard Lake Road | 1.166 | Reconstruction | Road Reconstruction, Sanitary Sewer Repair | No | | | $1,600,000 | EAR | $0 | $5,007,031 | $6,607,031 | Cost | Exempt | 1 |
| 67 | TBD | CON | 2023 | Washtenaw | Univ. of Michigan | Ann Arbor Connected Environment Reimagined (AACE 2.0) | City of Ann Arbor and adjacent communities | 0 | ITS Infrastructure and Device Installation | Retrofit existing equipment at approximately 54 locations; lease 100 U of M fleet vehicles for system testing; heat map testing; project-related information systems, data collection and repository; and outreach, education, and workforce development. | No | | | | | | | $12,706,425 | Add | Exempt | 2, 4, 7 |
| 68 | 219142 | CON | 2023 | Oakland | Pontiac | Golf Dr | Golf Drive from Old Telegraph Road to Bagley Street | 1.24 | Reconstruction | Road Reconstruction | No | | | $1,600,000 | EAR | $0 | $400,000 | $2,000,000 | Add | Exempt | 1 |
| 69 | 203926 | NI | 2023 | Wayne | Detroit, City of | Transit Capital | Areawide/City of Detroit/Wayne County | 0.000 | SP10-State Match urban Agency | Purchase vehicles, office and security equipment. | No | | | $9,592,455 | 5307 | $2,398,114 | $0 | $11,990,569 | Add | Exempt | 3 |
| 70 | 205176 | NI | 2023 | Wayne | Detroit, City of | Transit Capital | DDOT Service Area | 0.000 | SP1206-Bus terminal facility improvements; SP1406-security equipment - facilities | Transit Capital | No | | | $22,531,884 | 5307 | $5,632,971 | $0 | $28,164,855 | Add | Exempt | 3 |
| 71 | 205245 | NI | 2023 | Wayne | Detroit, City of | Transit Capital | DDOT Service Area | 0.000 | SP1104-40 foot and greater replacement bus with or without lift; SP1113-bus rehab; SP1206-Bus terminal facility improvements; SP1305-bus stop improvements; SP1405-communication equipment; SP1406-security equipment - facilities; SP1409-administrative vehicle; SP1801-preventative maintenance; SP1803-planning/studies; SP1811-misc. | Transit Capital | No | | | $25,593,582 | 5307, 5339 | $8,992,028 | $0 | $34,585,610 | Add | Exempt | 3 |
| 72 | 205259 | NI | 2023 | Wayne | Detroit, City of | Transit Capital | DDOT Service Area | 0.000 | SP1104-40 foot and greater replacement bus with or without lift; SP1113-bus rehab; SP1206-Bus terminal facility improvements; SP1305-bus stop improvements; SP1404-computers (hardware and software); SP1409-administrative vehicle; SP1801-preventative maintenance; SP1803-planning/studies; SP1811-misc. (explanation must be provided in work detail). | Transit Capital | No | | | $4,353,122 | 5307, 5339 | $1,088,280 | $0 | $5,441,402 | Add | Exempt | 3 |
| 73 | 208534 | NI | 2023 | Wayne | Detroit, City of | Transit Capital | Areawide | 0.000 | SP1203-admin/maintenance facility improvements | Transit Capital FY18/19 Section 5307 | No | | | $15,599,999 | 5307 | $3,900,000 | $0 | $19,499,999 | Add | Exempt | 3 |

# SEMCOG Regional Transportation Plan (RTP) Goal Key

2023-2026 Transportation Improvement Program (TIP)

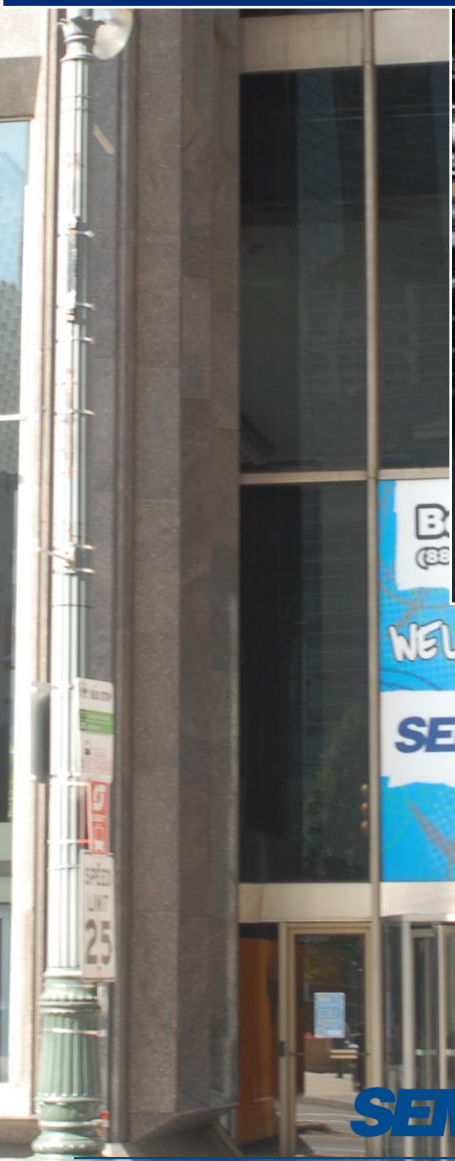
The ten 'Overarching Regional Transportation Policies for Southeast Michigan' as noted on page 4 of the 2045 RTP, are as follows:

1. Preserve Infrastructure through fiscally-responsible, data-driven asset management practices.
2. Increase Safety for all travelers, regardless of mode.
3. Increase Access to jobs and core services, regardless of race, gender, ethnicity, national origin, age, physical ability, or income.
4. Utilize Technology to cost-effectively improve the transportation system.
5. Integrate Environmental Protection into the transportation system, enhancing community health and increasing the overall resiliency of infrastructure.
6. Support the Regional Economy through the reliable movement of goods, efficient trade connections, expanded labor mobility, and support for tourism and local placemaking.
7. Educate and Collaborate with local governments, transportation agencies, utility providers, and residents to improve understanding and operation of the transportation system.
8. Increase Funding and Expand Local Options to provide resources that are sufficient to meet regional transportation needs.
9. Anticipate the Socio-economic Challenges of an Aging Region including sustaining mobility for all ages and mitigating labor shortages.
10. Measure Transportation System Performance to facilitate strategic investment through developing, collecting, analyzing, and disseminating data.



Summer Amendment,
2023

# Environmental Justice Technical Analysis





SEMCOG Southeast Michigan Council of Governments

*Developing Regional Solutions*

## SEMCOG. . . Developing Regional Solutions

### Mission

SEMCOG, the Southeast Michigan Council of Governments, is the only organization in Southeast Michigan that brings together all governments to develop regional solutions for both now and in the future. SEMCOG:

- Promotes informed decision making to improve Southeast Michigan and its local governments by providing insightful data analysis and direct assistance to member governments;
- Promotes the efficient use of tax dollars for infrastructure investment and governmental effectiveness;
- Develops regional solutions that go beyond the boundaries of individual local governments; and
- Advocates on behalf of Southeast Michigan in Lansing and Washington

# Environmental Justice Technical Analysis - 2045 Regional Transportation Plan and the fiscal year (FY) 2023 – FY 2026 Transportation Improvement Program

## Summer amendment, 2023



$00.00

# Acknowledgements

This report was written by SEMCOG staff.

# Table of Contents

# List of Data Displays

## Tables

## Figures

# 1. Introduction

## 1.1. Definition of Environmental Justice

The Environmental Justice office of US Environmental Protection Agency defines it as:

"Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

**Fair treatment** means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies

**Meaningful Involvement** means that:

- people have an opportunity to participate in decisions about activities that may affect their environment and/or health;
- the public's contribution can influence the regulatory agency's decision;
- their concerns will be considered in the decision making process; and
- the decision makers seek out and facilitate the involvement of those potentially affected."

Title VI of the 1964 Civil Rights Act (42 U.S.C. 2000d-1) states that, "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." In the same spirit, President Clinton issued Executive Order 12898 on February 11, 1994, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. The stated purpose of this order is to make achieving environmental justice part of (each Federal agency's) mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Similar orders followed from the U.S. Department of Transportation (USDOT) and Federal Highway Administration. The USDOT order specifically defines the five populations that must be included in environmental justice (EJ) analyses

## 1.2. SEMCOG's Approach

Transportation investments have both positive and negative impacts that may be localized in a particular community or portion of a community. Environmental justice requires that these impacts be distributed fairly among population groups especially focusing on population groups that have been traditionally disadvantaged. SEMCOG, in its response to this important challenge, enhanced a process to assess the impacts of the transportation planning process, on the target populations.

The target populations consist of minorities (African-American, Asian-American, Native American, and Hispanics), low-income households, senior citizens and households without cars. SEMCOG identified three principles to ensure environmental justice considerations were properly integrated into the transportation planning process:

- Adequate public involvement of target populations in regional transportation decision making,

- Assess (i.e., travel time) whether there were disproportionately high and adverse impacts on the target populations resulting from federal programs, and
- Ensure that the target populations receive an equitable share of benefits of federal transportation investments.

Although the quantitative measures included with this analysis cannot consider every possible aspect of environmental justice, SEMCOG believes they are good indicators as to whether significant environmental justice issues are present.

This appendix provides demographics information for the Southeast Michigan seven county region and the results of the identified measures applied to the transportation projects in the 2045 Regional Transportation Plan (RTP) and FY 2023- FY2026 Transportation Improvement Program.

# 2. Demographics

Demographic data for the special or target population used in SEMCOG's Environmental Justice analysis was compiled from synthesized households and population based on Census 2015 American Community Survey (ACS). Since Census 2015 doesn't provides 100 percent count data, SEMCOG synthesized disaggregated households and persons with essential attributes such as age, race, income and auto ownership using Census 5-year ACS estimates and PUMS samples. In order to further analyze the data through travel demand model, data was then aggregated to Traffic Analysis Zones (TAZs). There are 2,811 internal TAZs in the SEMCOG region. The impacted demographic groups are described below along with maps showing the regional distribution of those groups (section 2.2).

## 2.1. Special Population

**Minority Population:** The U.S. Department of Transportation (DOT) Order (5610.2) on EJ defines "Minority" as the following:

- Black (having origins in any of the black racial groups of Africa).
- Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race).
- Asian American (having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands).
- American Indian and Alaskan Native (having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

In addition SEMCOG includes the following groups as defined by the U.S. Census Bureau:

- Black or African American alone - not Hispanic or Latino.
- American Indian and Alaska Native alone - not Hispanic or Latino.
- Asian alone - not Hispanic or Latino.
- Native Hawaiian and Other Pacific Islander alone —not Hispanic or Latino.
- Some other race alone - not Hispanic or Latino.
- Persons of two or more races - not Hispanic or Latino.

Based on 2015 ACS, the SEMCOG region had a minority population of 1,446,089 which equates to about 30.6% of the total population. Figure 1 indicates the location of minority populations in the region. Traffic Analysis zones located in central cities and urban communities have higher proportions of minority population in the Southeast Michigan region.

**Low Income Households:** Poverty thresholds vary among different federal agencies and for different programs; hence SEMCOG used a derived measure to estimate low-income households. SEMCOG's Environmental Justice analysis includes all households that are in the lowest income quartile as low income households. SEMCOG's travel demand model uses households at TAZ level which are generated by synthesizing individual households at block group level from 2015 PUMS (Public Use Microdata Sample). These synthesized households were categorized into four income quartiles based on their household income. Lowest income quartile for SEMCOG region was identified as $26,143, and all households with household income at or below $26,143 are considered as low-income households for the purpose of this Environmental Justice analysis.

In 2015, there were 465,635 (25% of all households) low-income households in the region. Figure 2 shows the location and distribution of low-income households in the Southeast Michigan region. While higher proportions of low-income households are spread across the region, Detroit has considerable higher number of TAZs which have more than 60 percent of the households in low income category.

**Senior Population:** Southeast Michigan region, along with the nation is going through the demographic shifts associated with aging of baby boomers. Mobility barriers and age are linked together. Not every Seniors individual has mobility challenges, but the likelihood of a challenge increases as an individual ages. Population aged 65 and older is considered as senior population.

In 2015, SEMCOG region had 696,810 persons (14.8%) who were 65 years of age or older. Figure 3 shows the distribution of senior population in the region. Similar to the national trends, minority population in the Southeast Michigan region tend to be younger than white population and as a result central and older cities that have higher concentrations of minority population have much lower concentrations of senior population. On the contrary, exurban and emerging suburban communities have much higher proportions of persons who are 65 or older.

**Zero Car Households:** Persons in households that have no vehicles available are critical part of "transit dependent," population i.e., those who must rely on public transit for their daily travel needs and who have limited mobility. It is recognized that not owning a personal automobile may be a lifestyle choice for some, but for others automobile ownership is unattainable due to various constraints, including income or disability.

In 2015, Southeast Michigan had 158,368 households or 8.5 percent of households had no personal vehicle at their disposal. Figure 4 illustrates the distribution of zero car households in SEMCOG region. Central cities and block groups surrounding these central cores had relatively higher proportions of households with no vehicle available.

## Estimating 2045 Target and non-Target Populations by Zone

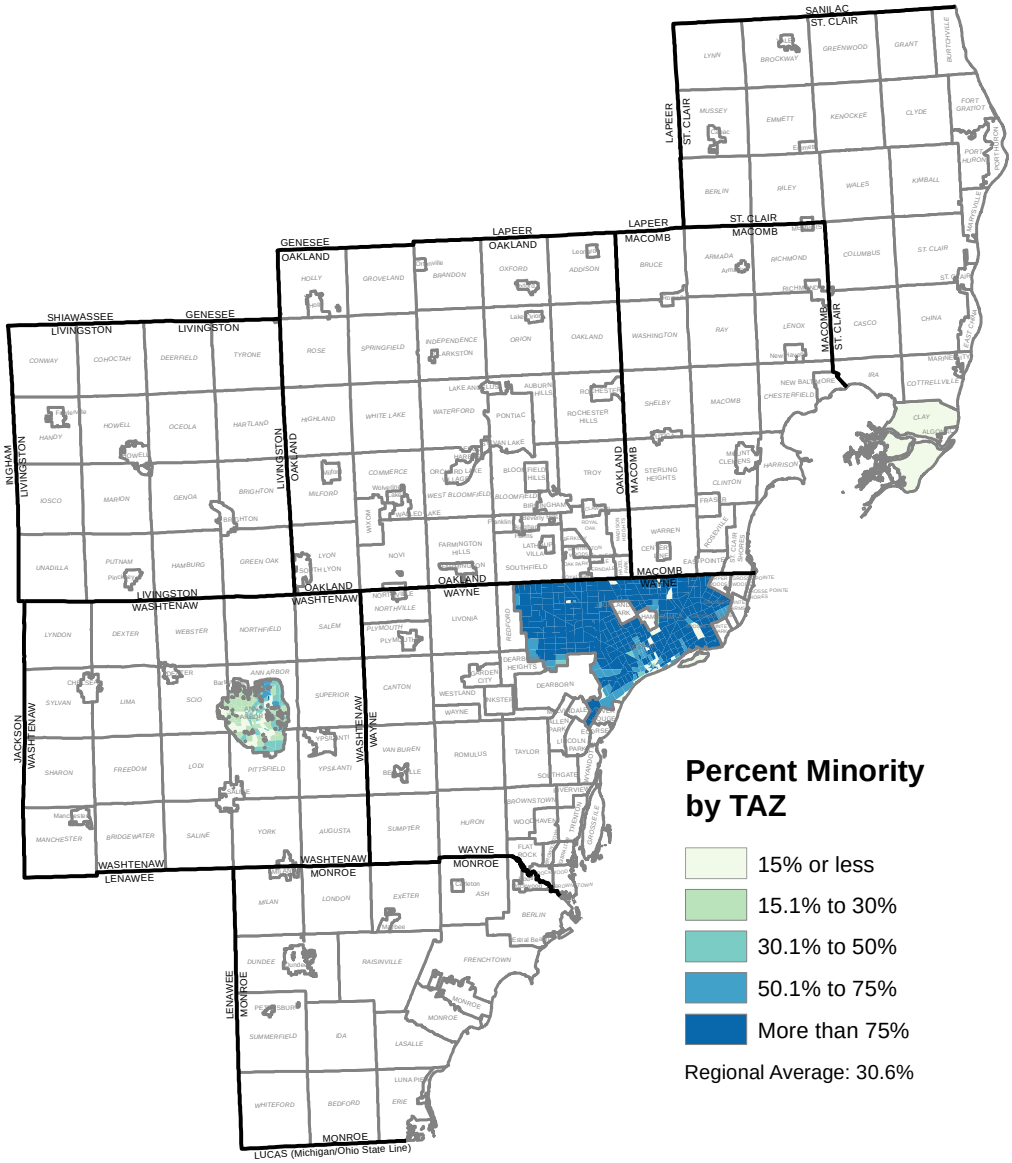
In order to create population-based measures, it is necessary to estimate the target and non-target population within each TAZ. SEMCOG utilizes a separate land use simulation model called UrbanSim to simulate land development for future years in the seven County region of SEMCOG. UrbanSim simulates the location decision for both new and existing households and firms, place households and jobs in parcels, and anticipate parcel level changes in Land development based on any known future events and land development constraints.

Input data for UrbanSim model consisted of a list of all households, with current locations (by building), household size (number of members), age of the household head, race, number of workers, children and autos. Household data along with persons in those households were synthesized using 2011 - 2015 American Community Survey estimates at Census Block Group level. Subsequently these households and persons were placed on individual building using building's housing attributes and synthesized household attributes.

The output from the UrbanSim model is parcel level socio-economic data including households by type (income, age, race, household size, presence of children, vehicles available, and number of workers), jobs by type (industry and number of employees), and land use by type for all future years till 2045. The parcel level output data is aggregated to TAZs and the results are used as inputs for SEMCOG's travel demand model and for the Environmental Justice Analysis.

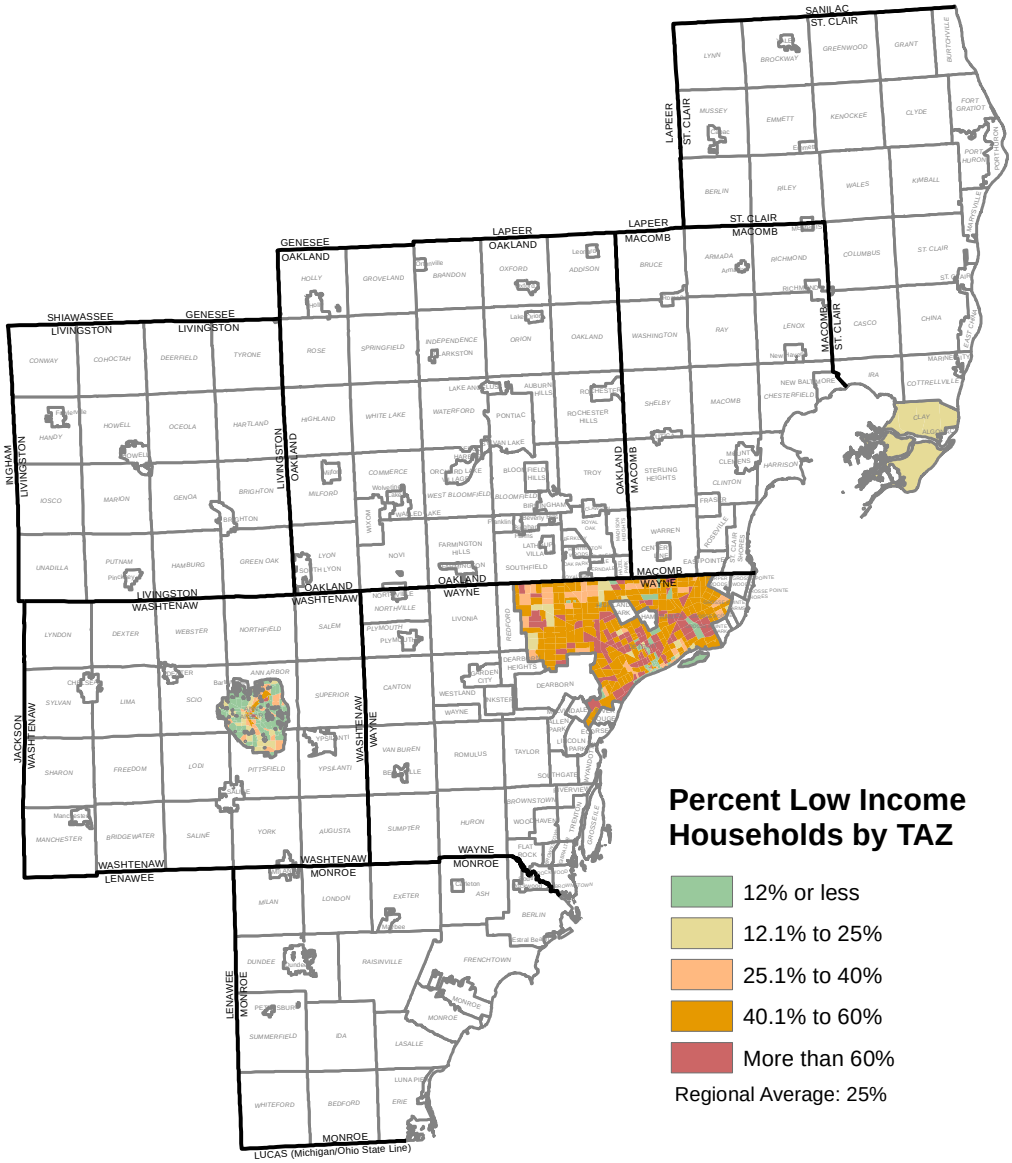
## 2.2. Distribution of Selected Population

*Figure 1*
***Distribution of Minority Population, 2015.Southeast Michigan***



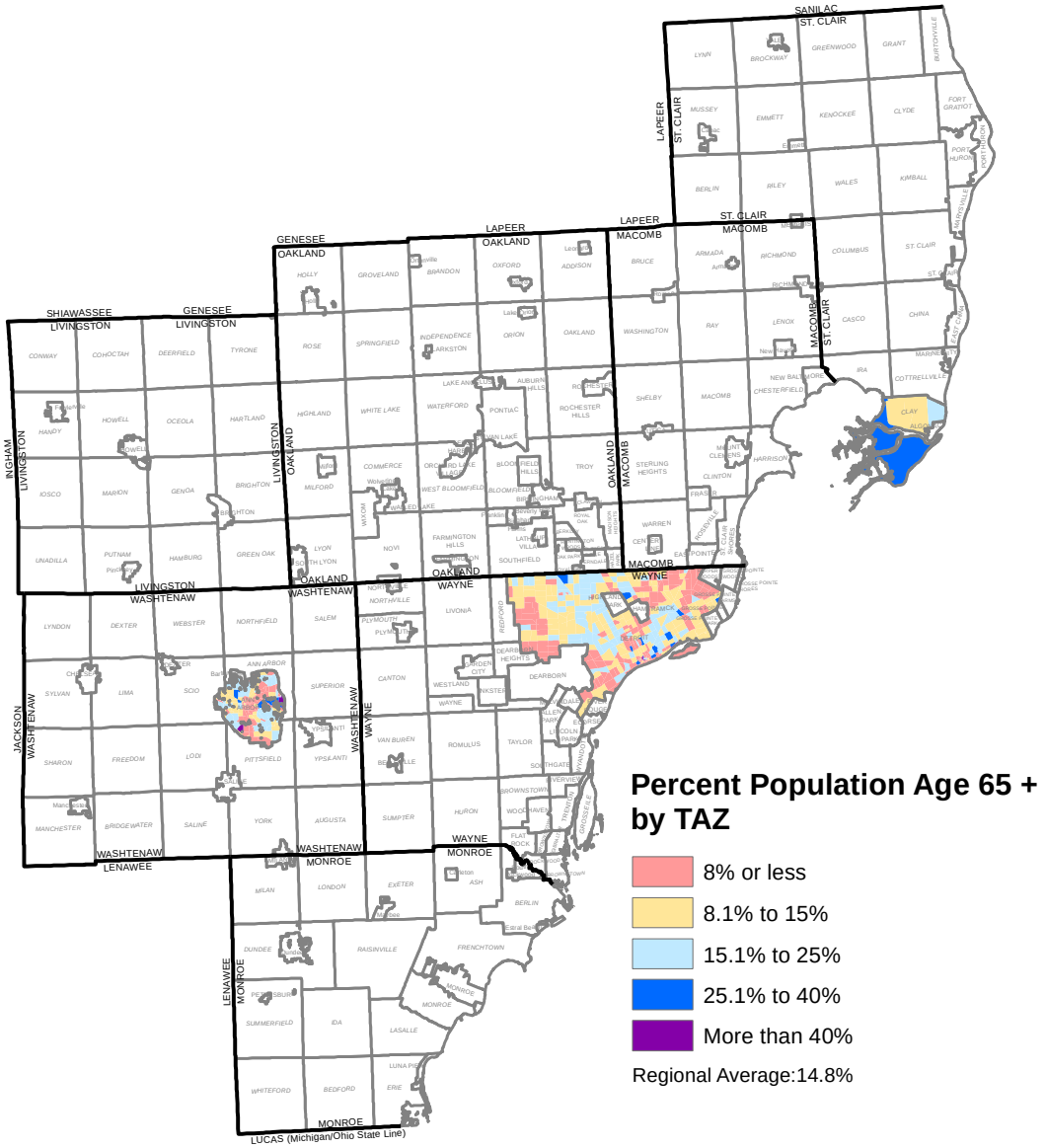

Source: SEMCOG

*Figure 2*
***Distribution of Low Income Households, 2015. Southeast Michigan***



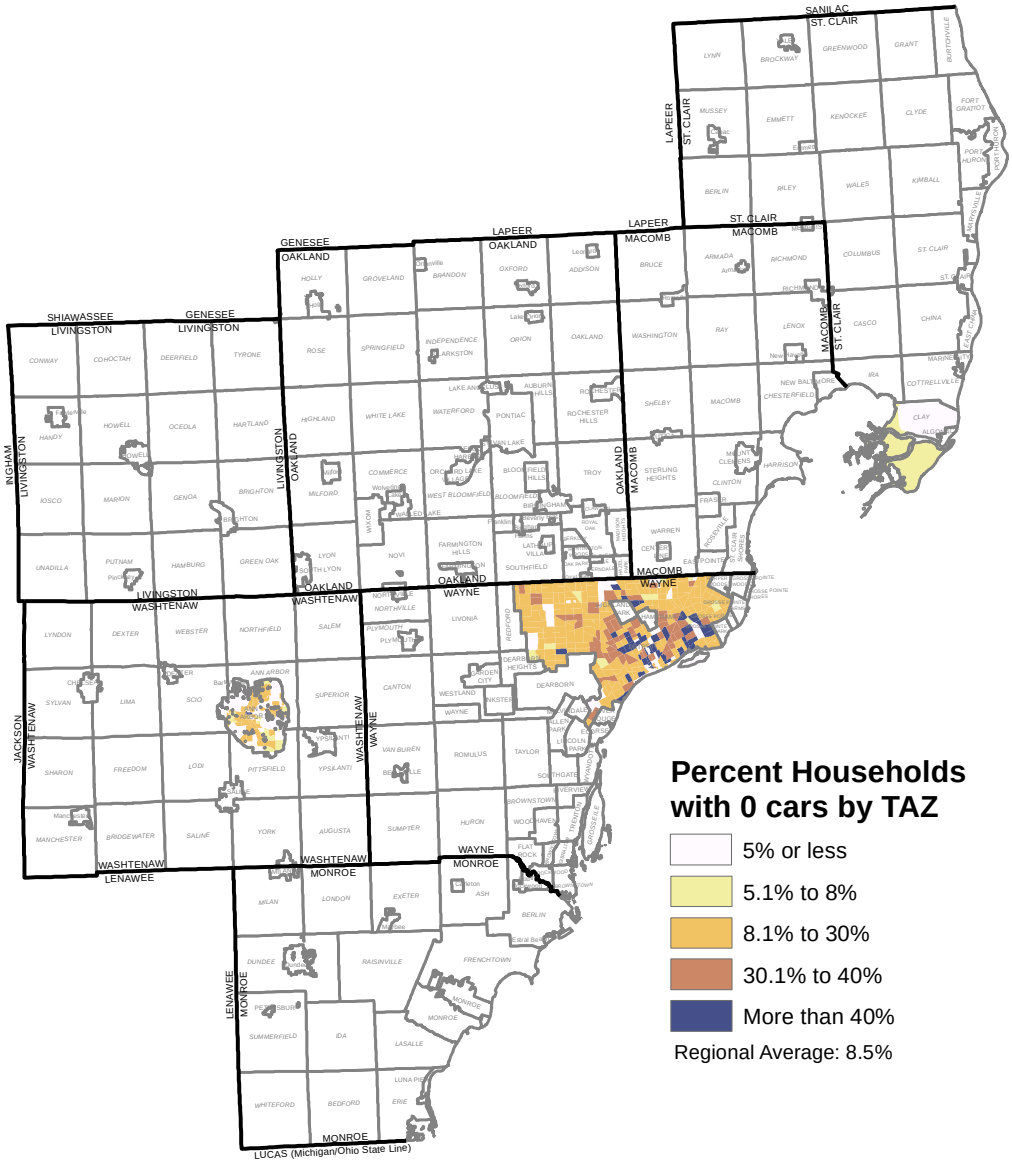

Source: SEMCOG

*Figure 3*
***Distribution of Senior Population, 2015. Southeast Michigan***




Source: SEMCOG

*Figure 4*
***Distribution of Households with No Vehicles Available, 2015. Southeast Michigan***




Source: SEMCOG

# 3. Quantitative Measures

## 3.1. Measures Methodology

This section describes all the quantitative measures identified for this technical analysis. The accessibility or travel time measures were developed based on travel time estimates from SEMCOG's 4-step travel demand forecast model (TDFM). These estimates are available for highway and transit networks, for current and future build and no-build conditions. Section 2 describes demographics data used in the process.

## 3.2. Measures Identified for Application

Several measures are identified for this analysis based on the data and tools available. Measures are calculated for three scenarios;

1. 2015 base year
2. 2045 no-build conditions assuming no new transportation projects constructed after 2015 despite the population and socioeconomic growth
3. 2045 build conditions assuming all the projects in the long range plan are constructed

### Average Number of Job opportunities

This measure estimates the average number of jobs accessible from each origin or home TAZ to every other destination or work TAZ within a specified travel time. The 2045 Regional Plan employment input to the model use Bureau of Economic Analysis Equivalent Job (BEA-EJ) dataset. These jobs includes wage and salary principal jobs, self-employed jobs, and secondary jobs. Travel time estimates, commonly known as travel-time skims, for the A.M. peak period are used for auto and transit modes. Time thresholds of 25 minutes by auto and 50 minutes by transit are selected; these times reflect the regional average trip length for work trips. Employment data for each TAZ is available from SEMCOG's Regional Demographics and Socio-economic Forecast.

Job opportunities within 25 minutes by auto and 50 minutes by transit are aggregated from each origin TAZ. These jobs numbers are weighted by each group within the TAZ. Average number of jobs was calculated for each group by aggregating weighted jobs for each group for the region divided by group regional totals.

### Average Shopping opportunities

This measure estimates the average retail shopping area (acres) accessible within a specified travel time.

SEMCOG maintains building data layer representing digital footprint of each building in the region. Retail square footage (converted to acres) was extracted from the footprints layer and aggregated by Traffic Analysis Zones.

Time thresholds of 15 minutes by auto and 30 minutes by transit are selected; these times reflect the regional average trip length for shopping trips. Shopping opportunities within 15 minutes by auto and 30 minutes by transit during the mid-day period are calculated from each TAZ. The number of shopping

centers accessible from each TAZ is then weighted by each target population group within the TAZ to get a weighted average of the number of shopping centers accessible to each group.

### Average Number of Non-Shopping opportunities

This measure estimates the average number of non-shopping opportunities accessible within a specified travel time. SEMCOG currently maintains GIS coverage of k-12 schools, libraries, parks, hospitals and medical centers. For 2045 RTP, this data will be used to measure non-shopping opportunities.

The measurement methodology is same as for shopping or job opportunities.

Time thresholds of 15 minutes by auto and 30 minutes by transit are selected; these times reflect the regional average trip length for other trips. Non-shopping opportunities within 15 minutes by auto and 30 minutes by transit during the mid-day period are calculated from each TAZ. The number of non-shopping opportunities accessible from each TAZ is then weighted by each target population group within the TAZ to get a weighted average of the number of shopping centers accessible to each group.

The next three measures analyze the population groups covered by a major destination location.

### Percent of Population close to a College

This measure estimates the percentage of population groups within a specified travel time to a college location. First, a list of major college campuses in the region is established; see Table 22 for list of colleges. From these college locations, the share of population groups within specified travel times are calculated.

TDFM skims for A.M. peak period are used to calculate travel time from each college TAZ to every other TAZ. Population groups in each TAZ that is within 25 minute by auto or 50 minute by transit are aggregated and divided by the total population for that group to get percentage of each population group covered by colleges within a specified travel time.

### Percent of Population close to a Hospital

This measure is developed in the same manner as for colleges. Table 23 shows a list of major hospitals in the region. This list does not include smaller medical facilities and clinics. From these hospital locations, the share of population groups within specified travel times are calculated.

TDFM skims for mid-day time period are used to calculate travel time from each hospital to each TAZ. Population groups in each TAZ that is within 15 minutes by auto or 30 minute by transit are aggregated and divided by the total population for that group to get percentage of each population group covered by hospital within a specified travel time.

### Percent of Population close to a Major Retail Center

This measure also used the same measurement methodology as for colleges. Table 24 shows a list of major retail centers in the region. This list includes major regional shopping malls, lifestyle centers (such as Partridge Creek, Clinton Twp), destination centers (such as IKEA, Canton) and outlet malls. From these major retail locations, the share of population groups within specified travel times are calculated.

TDFM skims for mid-day time period are used to calculate travel time from major retail centers to each TAZ. Population groups in each TAZ that is within 15 minute by auto or 30 minute by transit are

aggregated and divided by the total population for that group to get percentage of each population group covered by major retail centers within a specified travel time.

### Average Travel time for work purpose

This measure estimates the average travel time for work purpose. TDFM provides an estimate of person trips and travel time for work from each origin TAZ to employment TAZ. The total person trips are multiplied by target population shares (based on socio-economic distribution) for each TAZ to get trips for minority, seniors, and zero car households. Only exception is the low-income group, where the trips made by low income group are readily available from the TDFM. Travel time skims for work purpose are then weighted by population groups to calculate average travel time for work purpose for auto. Transit skims are used to calculate average transit travel time.

### Average Travel time for shopping purpose

This measure estimates the average travel time for shopping purpose. TDFM provides an estimate of person trips and travel time for shopping purpose from each origin TAZ to destination TAZ. The total person trips are multiplied by target population shares (based on socio-economic distribution) for each TAZ to get trips for minority, seniors, and zero car households. Only exception is the low-income group, where the trips made by low income group are readily available from the TDFM. Travel time skims for shopping purpose are then weighted by population groups to calculate average travel time for shopping purpose. Transit skims are used to calculate average transit travel time.

### Average Travel time for other purposes

This measure estimates the average travel time for other purposes. TDFM provides an estimate of person trips and travel time for other purposes from each origin TAZ to destination TAZ. The total person trips are multiplied by target population shares (based on socio-economic distribution) for each TAZ to get trips for minority, seniors, and zero car households. Only exception is the low-income group, where the trips made by low income group are readily available from the TDFM. Travel time skims for other purposes are then weighted by population groups to calculate average travel time for other purposes. Transit skims are used to calculate average transit travel time.

### Average Travel time for All purposes

This measure estimates the average travel time for all internal purposes. Internal purposes include home based work, shopping, school, other, non-home based work and non-home based other. TDFM provides an estimate of person trips and travel time for all purposes from each origin TAZ to destination TAZ. The total person trips are multiplied by target population shares (based on socio-economic distribution) for each TAZ to get trips by each population group. Travel time skim for mid-day is then weighted by population groups to calculate average travel time for all purposes. Transit skims are used to calculate average transit travel time.

## Per Capita Transportation Funding

In developing the regional transportation plan, each project was initially assigned a set of counties that the project is geographically located in. Further work was done to localize individual projects along roads and at intersections where possible. For these projects, a buffer was applied to represent the area impacted by

the project. Projects involving freeways were buffered by 2.5 miles, while all other projects that could be mapped were buffered by 0.5 miles.

In order to analyze transportation investment by population group, representation of each project – weighted by project cost – was geographically overlaid with the representation of the selected population groups by Traffic Analysis Zone (TAZ) in 2015 and as forecasted by SEMCOG in 2045. Each of the four population groups – minorities, low-income households, seniors, and no car households – were analyzed separately. As a result of the overlay, project costs were distributed on a per capita basis for the minority and senior population, and on a per household basis for low-income and no car households. Per capita and per household investment is then summarized by adding up total investment by population group and dividing by the total of persons or households in the population group in 2015 and 2045. Finally, these numbers are compared to equivalent numbers for the balance of the population or households to assess equity.

# 4. Results

This section presents the results of all the measure identified for this analysis. The results are compared across the three scenarios, year 2015, 2045 No build, 2045 build. The data tables are included in Attachment A.

## Average Number of Job opportunities

Figures 5 and 6 show the target population on average have access to more jobs as compared to non-target population in each scenario. When compared across scenarios, the build conditions shows access to more jobs than no-build scenario by auto. The improvement in accessibility appears to be benefiting target and non-target groups in the same way. It appears that for this measure, there are no prominent disproportionate negative impacts of the transportation projects among the population groups.

*Figure 5*
***Average Number of Jobs within 25 minutes – AM peak by auto***

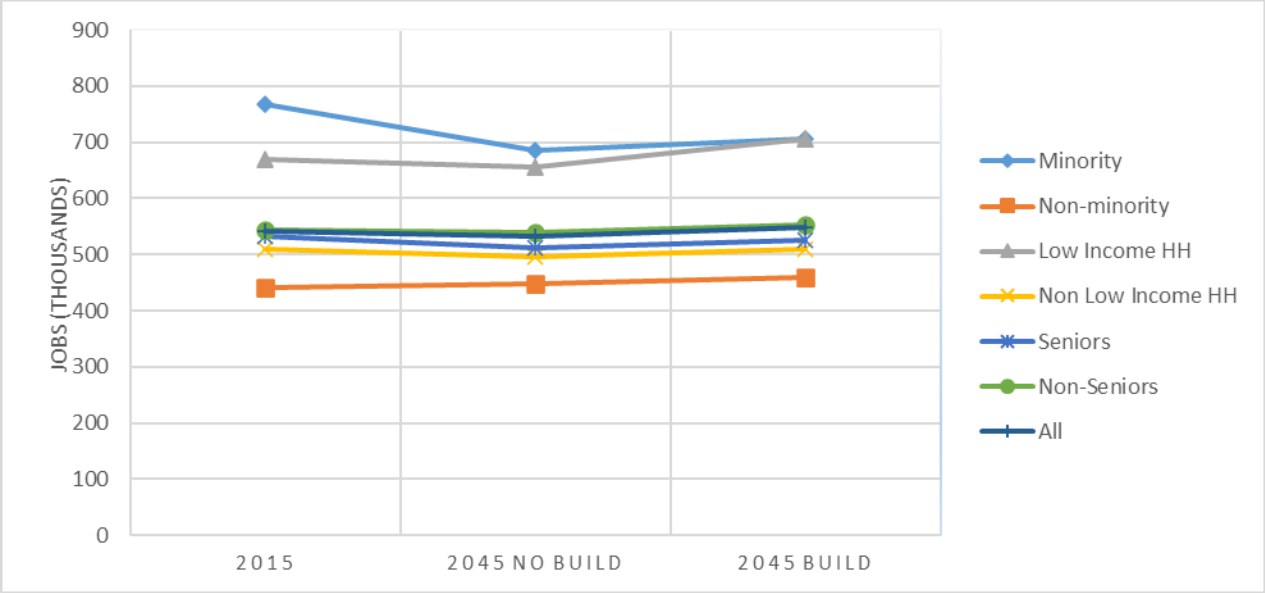
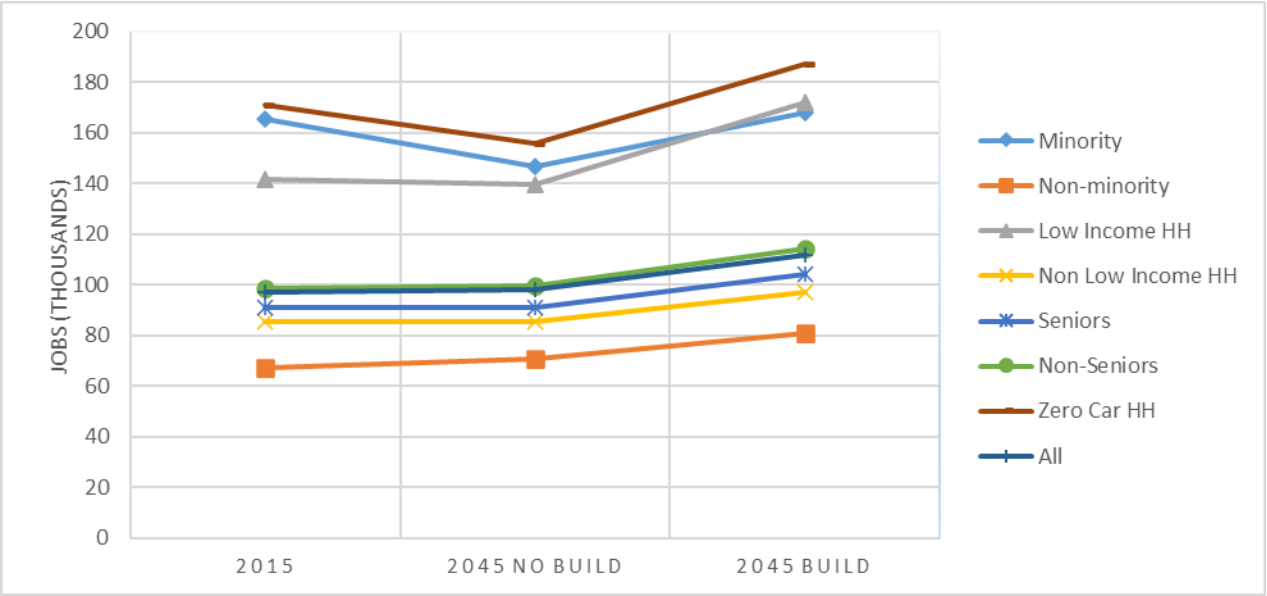


*Figure 6*
***Average Number of Jobs within 50 minutes - AM peak by transit***




## Average Shopping opportunities

Figures 7 and 8 show the target populations on average have access to more shopping opportunities (acres) as compared to non-target population in each scenario. When compared across scenarios, the build condition shows access to more shopping opportunities than no-build scenario by auto. The improvement in accessibility appears to be benefiting target and non-target groups in the same way.

It appears that for this measure, there are no prominent disproportionate negative impacts of the transportation projects among the population groups.

*Figure 7*
***Average Shopping Opportunities within 15 minutes – Mid-day period by auto***

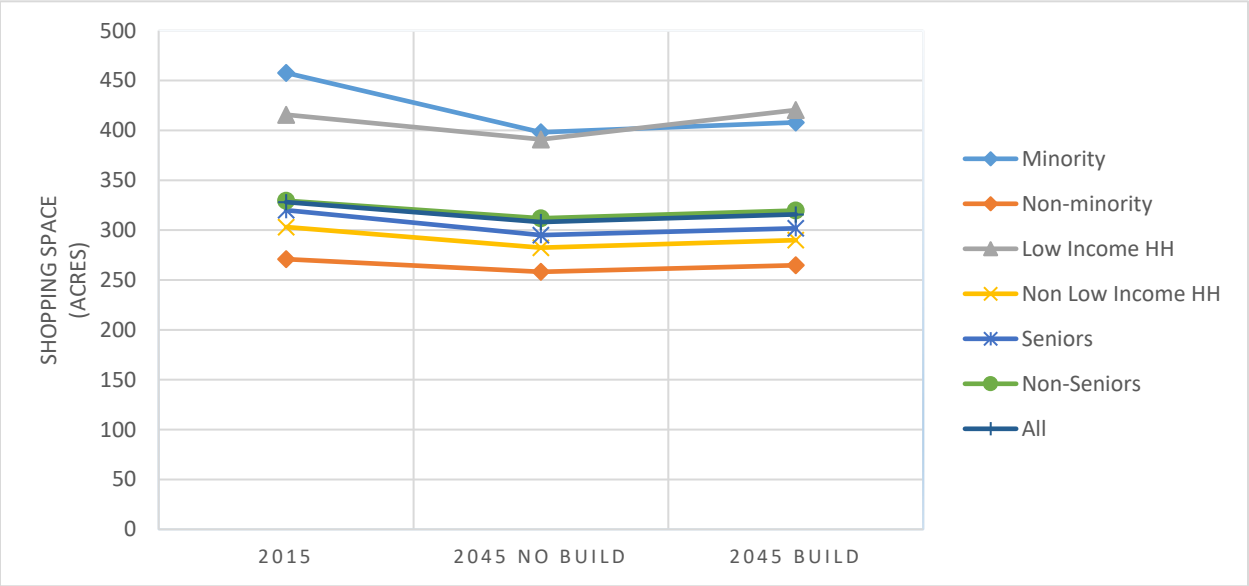
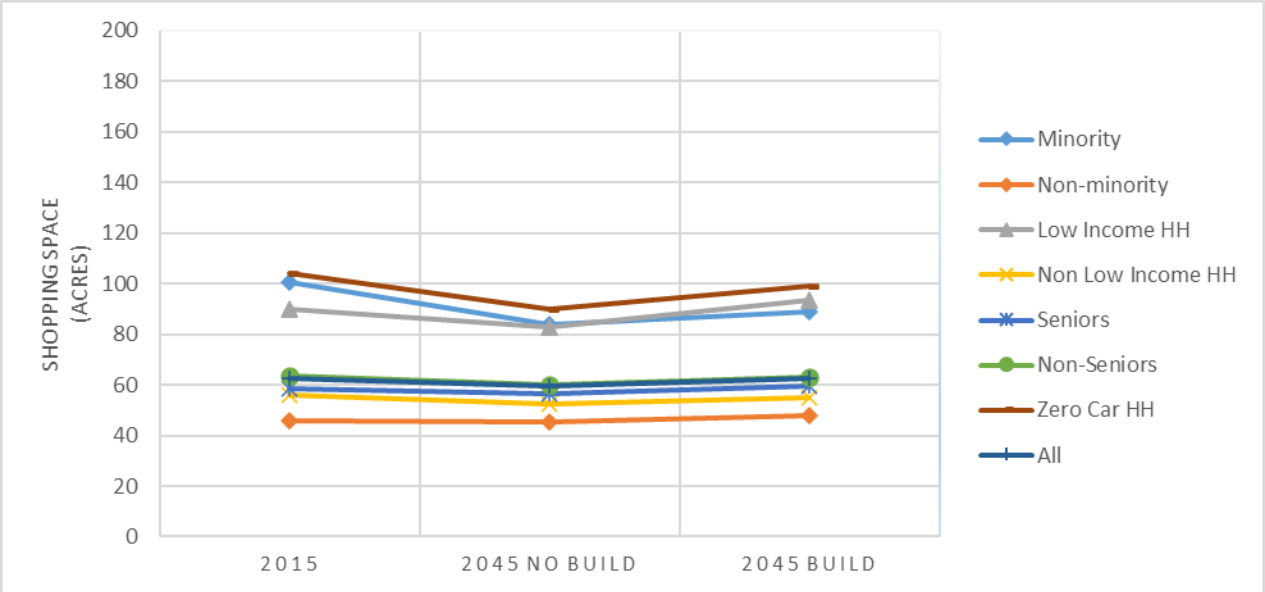



*Figure 8*
***Average Shopping Opportunities within 30 minutes - Mid-day period by transit***




## Average Number of Non-Shopping opportunities

Figures 9 and 10 show the target population on average have access to more non-shopping opportunities as compared to non-target population in each scenario. When compared across scenarios, the build

condition shows access to more non-shopping opportunities than no-build scenario by auto. The improvement in accessibility appears to be benefiting target and non-target groups in the same way.

It appears that for this measure, there are no prominent disproportionate negative impacts of the transportation projects among the population groups.

*Figure 9*
***Average Non-Shopping Opportunities within 15 minutes - Mid-day period by auto***

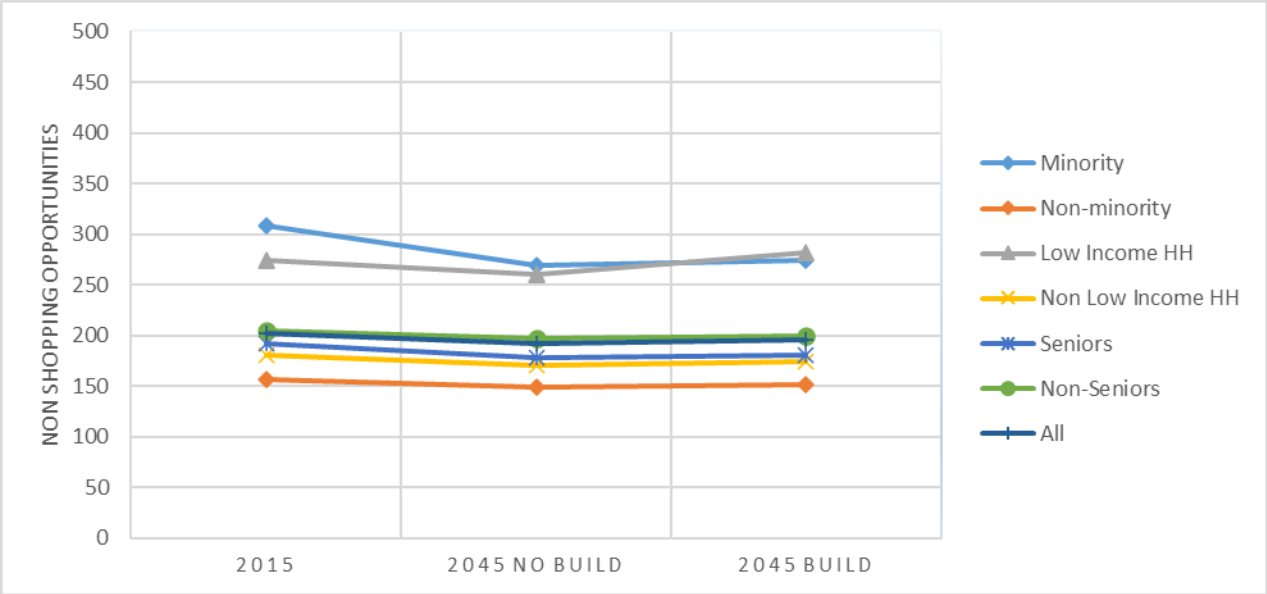
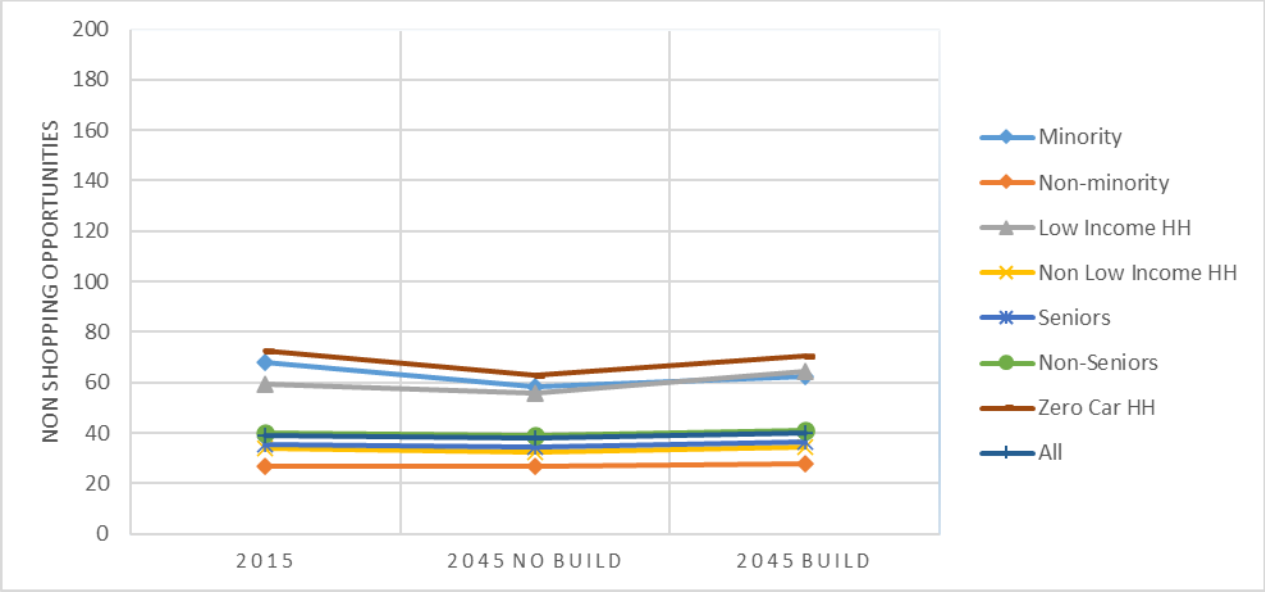



*Figure 10*
***Average Non-Shopping Opportunities within 30 minutes - Mid-day period by transit***



## Percent of Population close to a College

Figure 11 shows a higher percentage of target groups within 25 minutes by auto in the A.M peak period to a college campus as compared to non-target groups. This is true for each scenario. When compared across scenarios, the build condition shows slightly higher percentages then no-build scenario. The improvement in accessibility appears to be benefiting target and non-target groups almost similarly. .

It appears that for this measure, there are no prominent disproportionate negative impacts of the transportation projects among the population groups.

*Figure 11*
***% Population within 25 minutes AM peak to a College by auto***

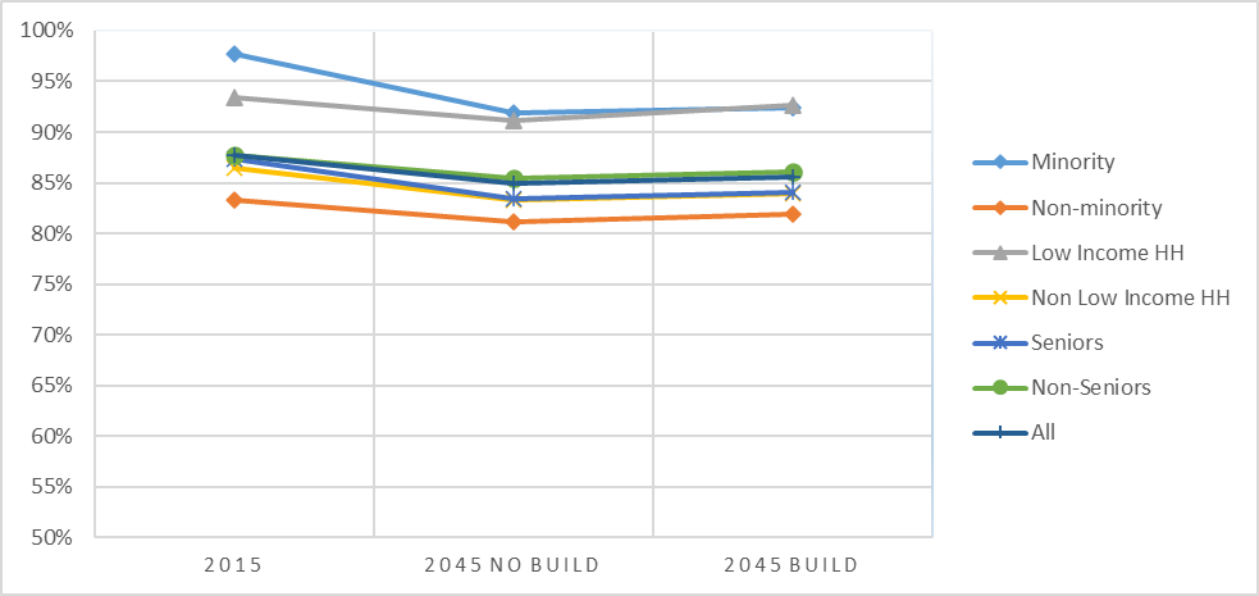
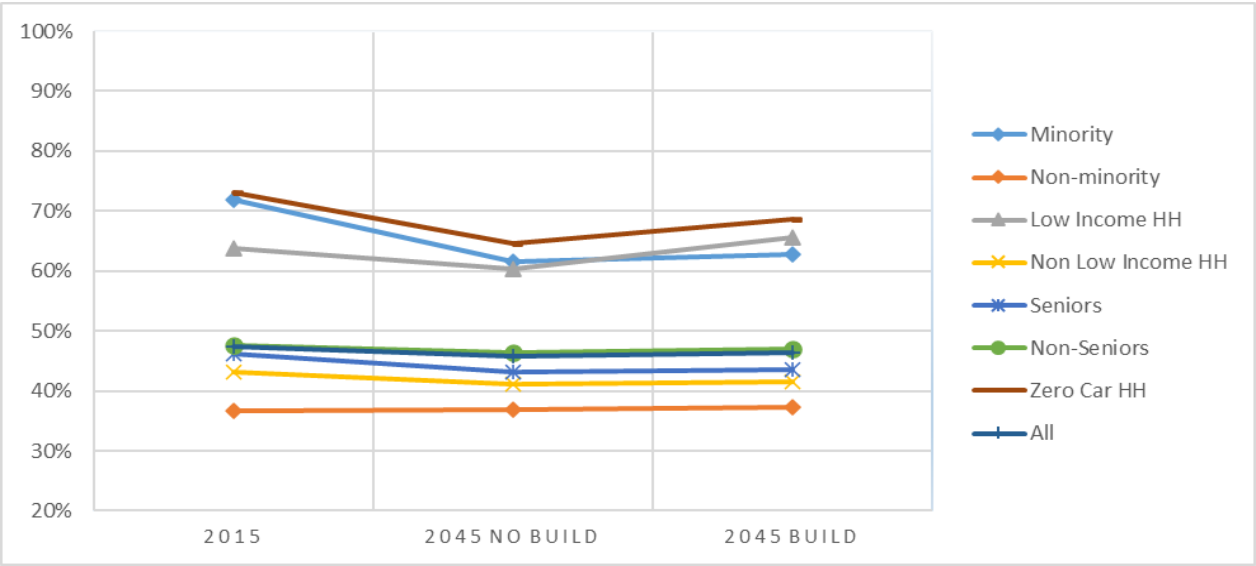



*Figure 12*
***% Population within 50 minutes AM peak to a College by transit***



## Percent of Population close to a Hospital

Figure 13 shows a higher percentage of target groups within 15 minutes by auto during the mid-day period to a major hospital as compared to non-target groups. This is true for each scenario. When compared across scenarios, the build condition shows slightly higher percentages then no-build scenario. The improvement in accessibility both by auto and transit appears to be benefiting target and non-target groups almost similarly.

It appears that for this measure, there are no prominent disproportionate negative impacts of the transportation projects among the population groups.

*Figure 13*
***% Population within 15 minutes Mid-day period to a Hospital by auto***

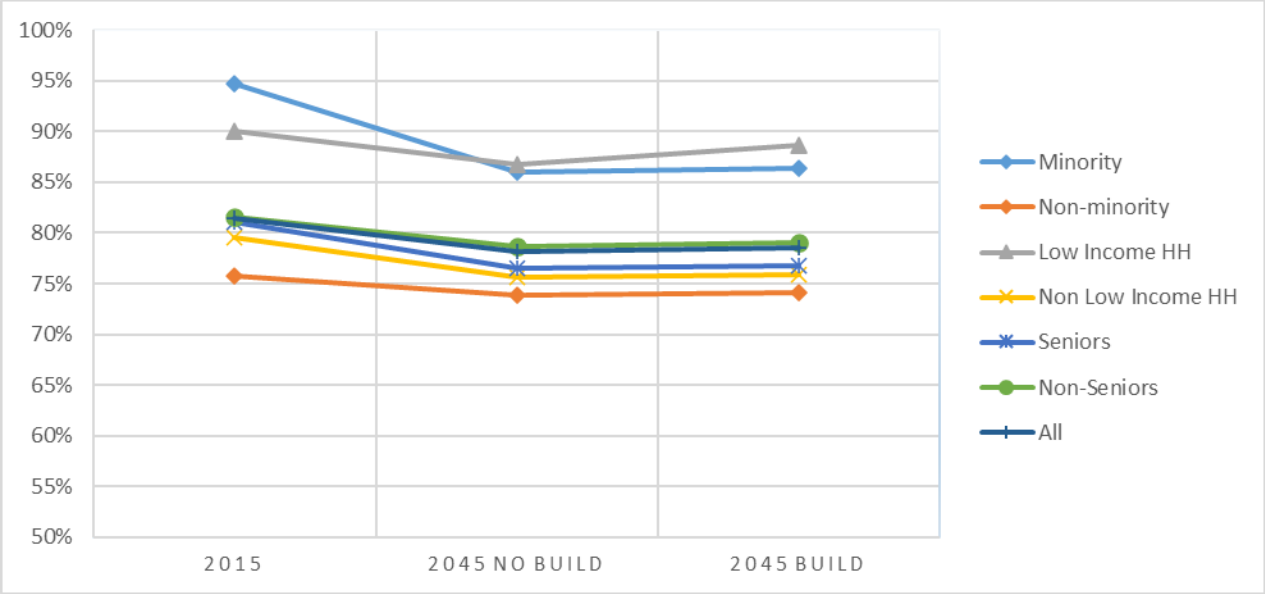
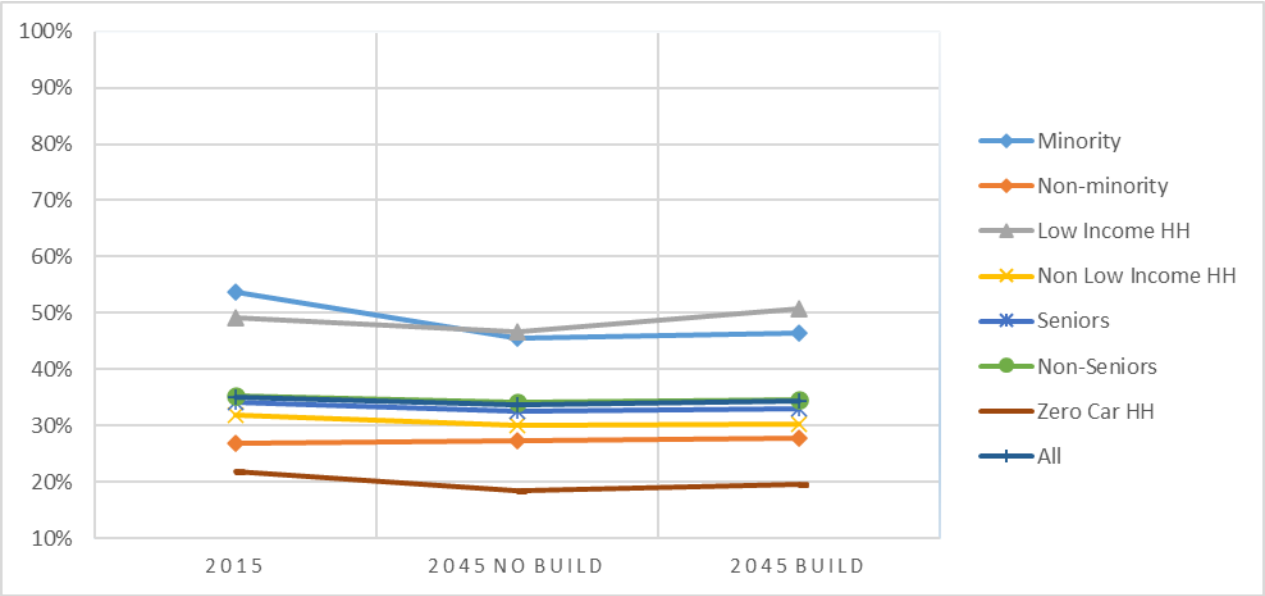


*Figure 14*
***% Population within 30 minutes Mid-day period to a Hospital by transit***




## Percent of Population close to a Major Retail Center

Figure 15 shows a higher percentage of target groups within 15 minutes by auto during the mid-day period to a major retail center as compared to non-target groups. This is true for each scenario. When compared across scenarios, the build condition shows slightly higher percentages then no-build scenario. The improvement in accessibility appears to be benefiting target and non-target groups almost similarly.

It appears that for this measure, there are no prominent disproportionate negative impacts of the transportation projects among the population groups.

*Figure 15*
***% Population within 15 minutes Mid-day period to a Major Retail by auto***

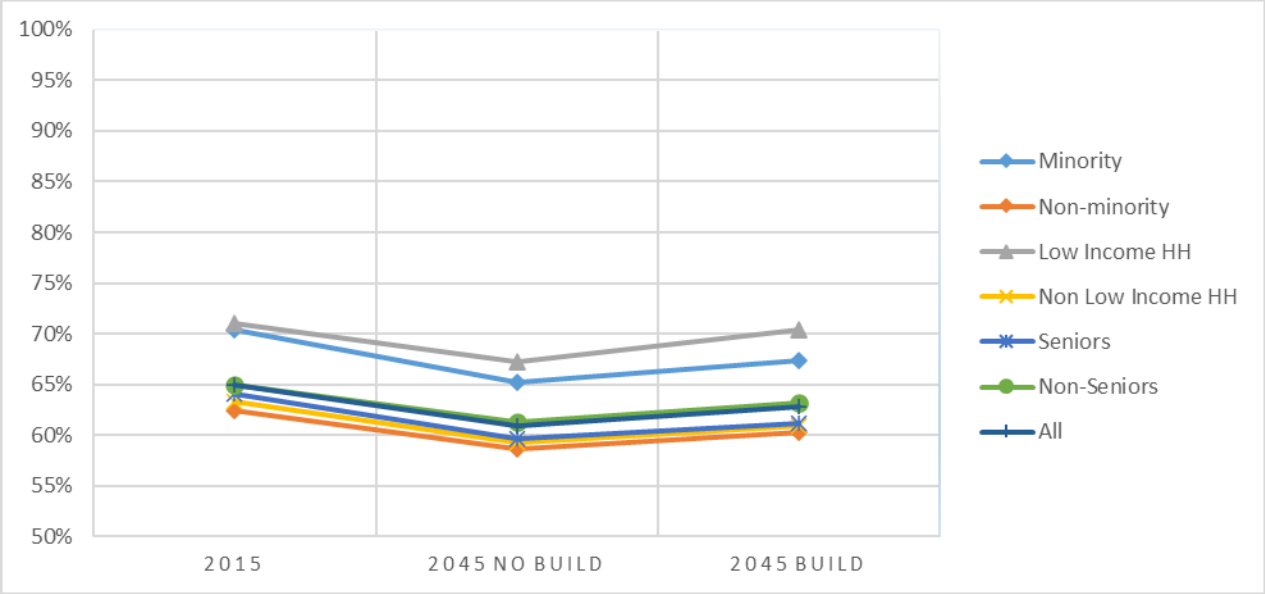
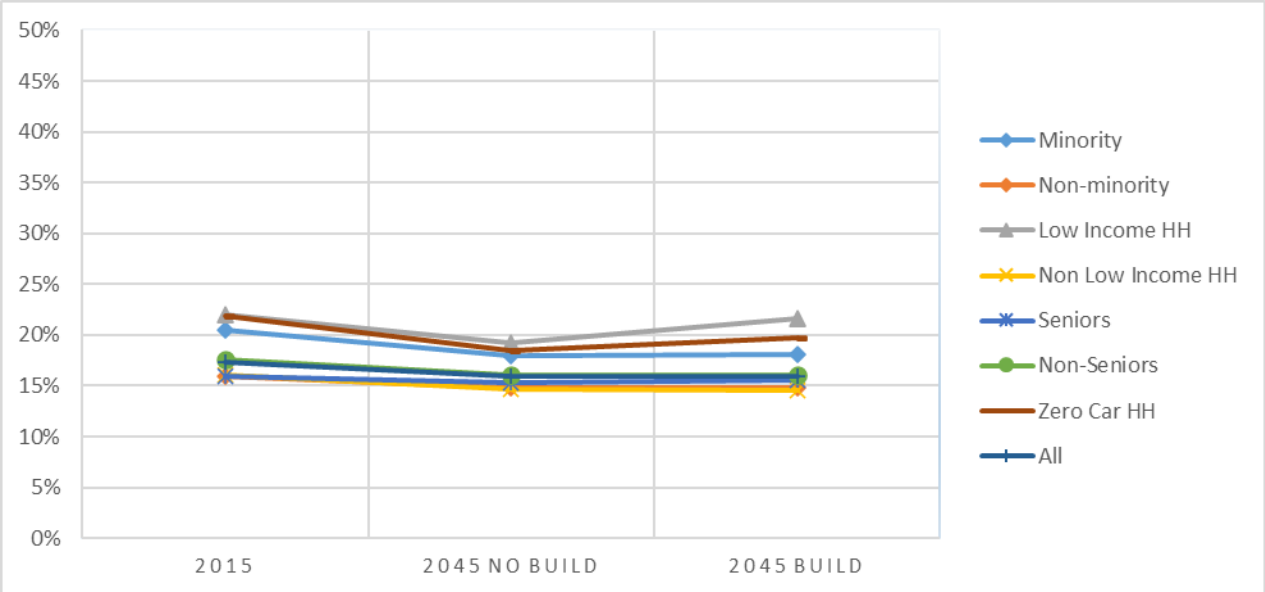



*Figure 16*
***% Population within 30 minutes Mid-day period to a Major Retail by transit***




## Average Travel time for Work purpose

Figure 17 shows that the regional average auto travel time for work trip is less for target groups as compared to non-target groups, in each scenario. When compared across scenarios, the build scenario travel times are less for each population group than no-build. Travel time savings are relatively similar for each of the target or non-target group. Transit travel times for some target population groups are slightly higher as compared to non-target group in some instances, but in most cases the difference is within 5%. However, the benefits of travel time savings due to improved service seems just.

*Figure 17*
***Average Auto Travel time for Work***

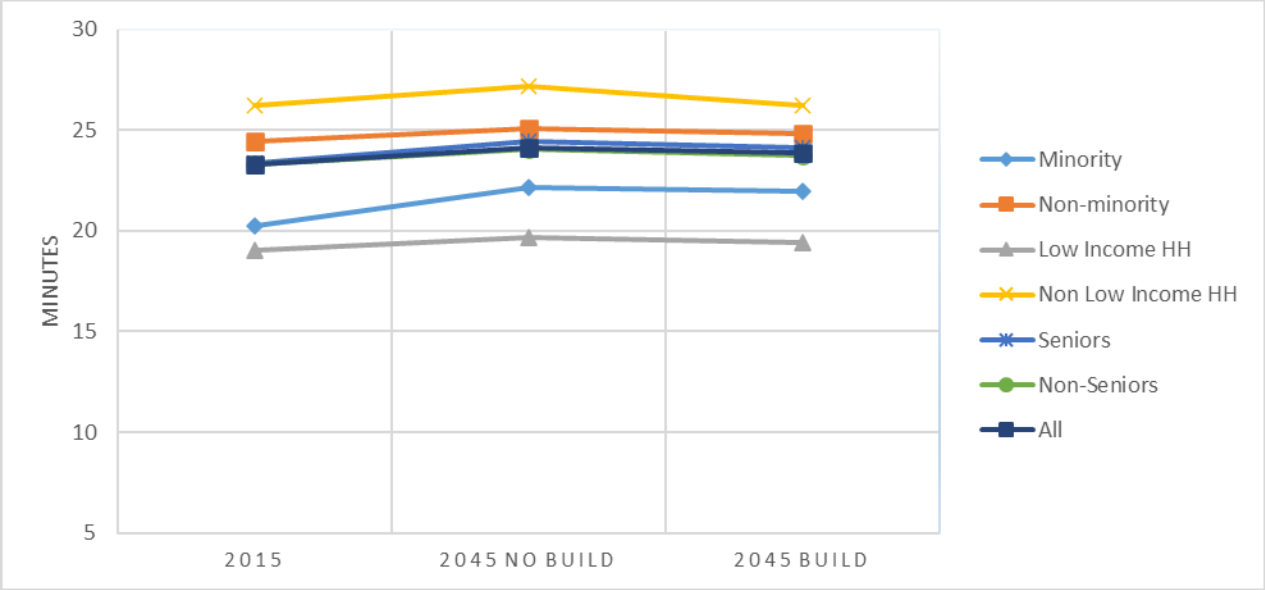
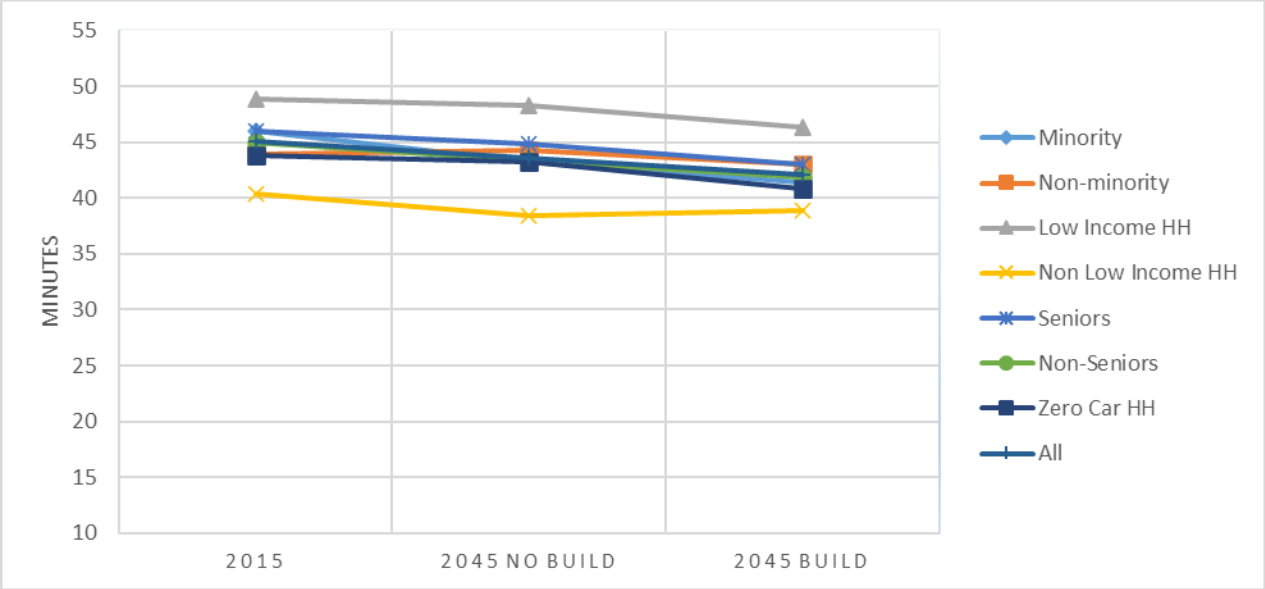



*Figure 18*
***Average Transit Travel time for Work***




## Average Travel time for Shopping purpose

Figure 19 shows that the regional average auto travel time for shopping trip is less for target groups as compared to non-target groups, in each scenario. When compared across scenarios, the build scenario travel times are less for each population group than no-build. Travel time savings are relatively similar for each of the target or non-target group. Transit travel times for some target population groups are slightly higher as compared to non-target group in some instances, but in most cases the difference is within 5%. However, the benefits of travel time savings due to improved service seems just.

*Figure 19*
***Average Auto Travel time for Shopping***

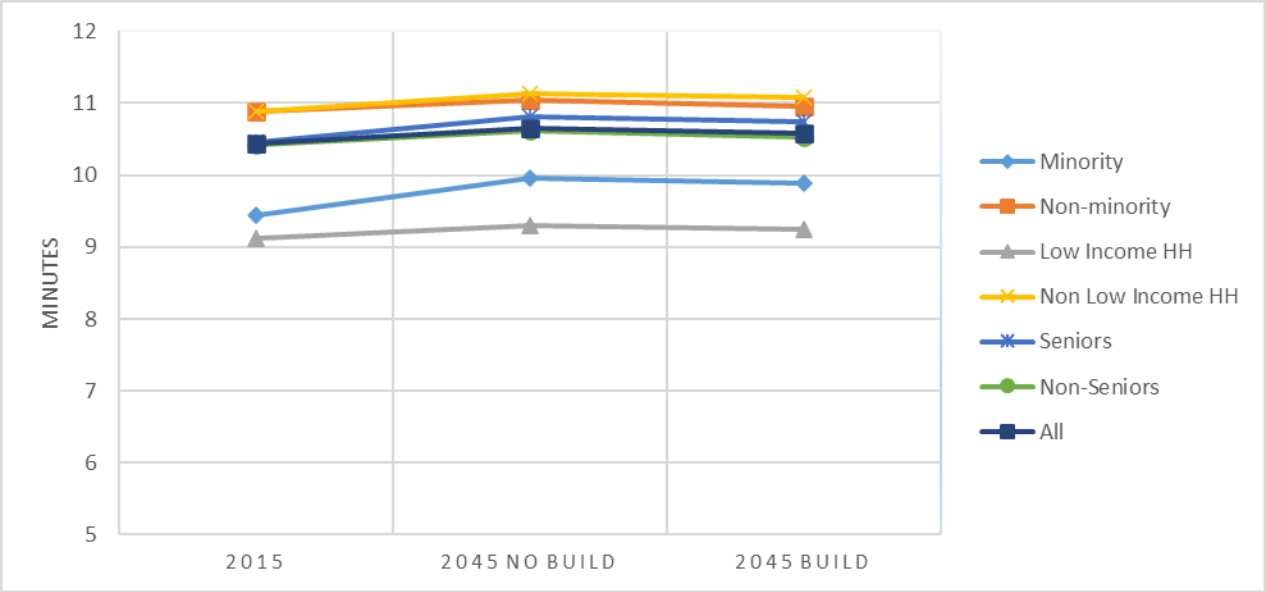
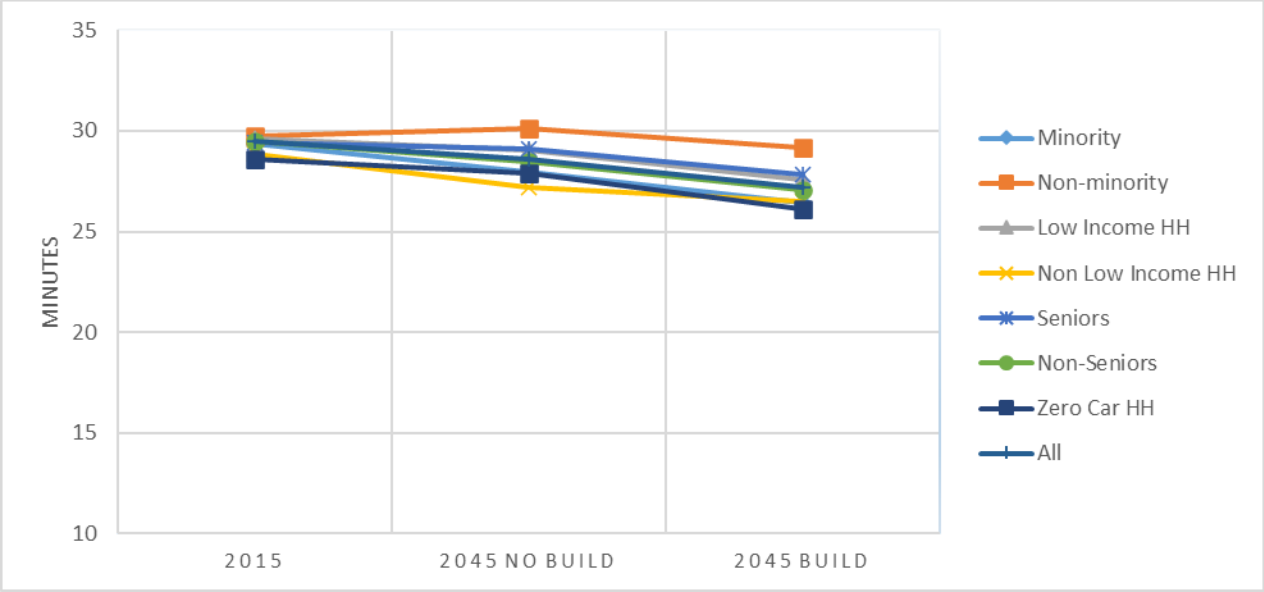



*Figure 20*
***Average Transit Travel time for Shopping***




## Average Travel time for Other purposes

Figure 21 shows that the regional average auto travel time for other purpose trip is less for target groups as compared to non-target groups, in each scenario. When compared across scenarios, the build scenario travel times are less for each population group than no-build. Travel time savings are relatively similar for each of the target or non-target group. Transit travel times for some target population groups are slightly

higher as compared to non-target group in some instances, but in most cases the difference is within 5%. However, the benefits of travel time savings due to improved service seems just.

*Figure 21*
***Average Auto Travel time for Other purpose***

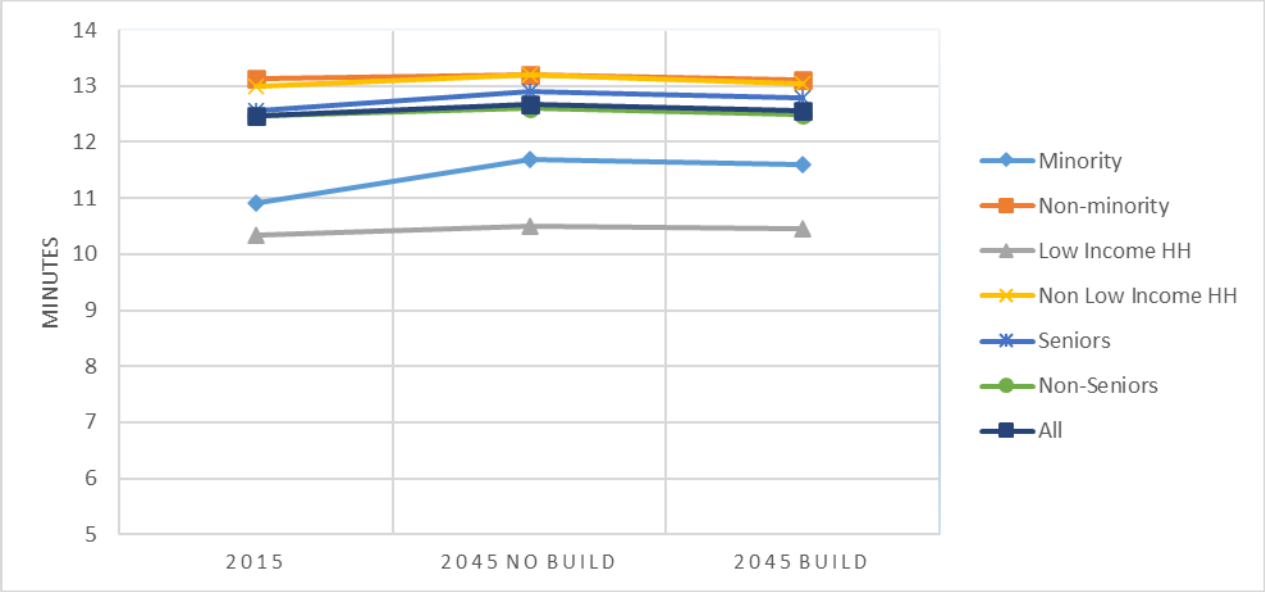
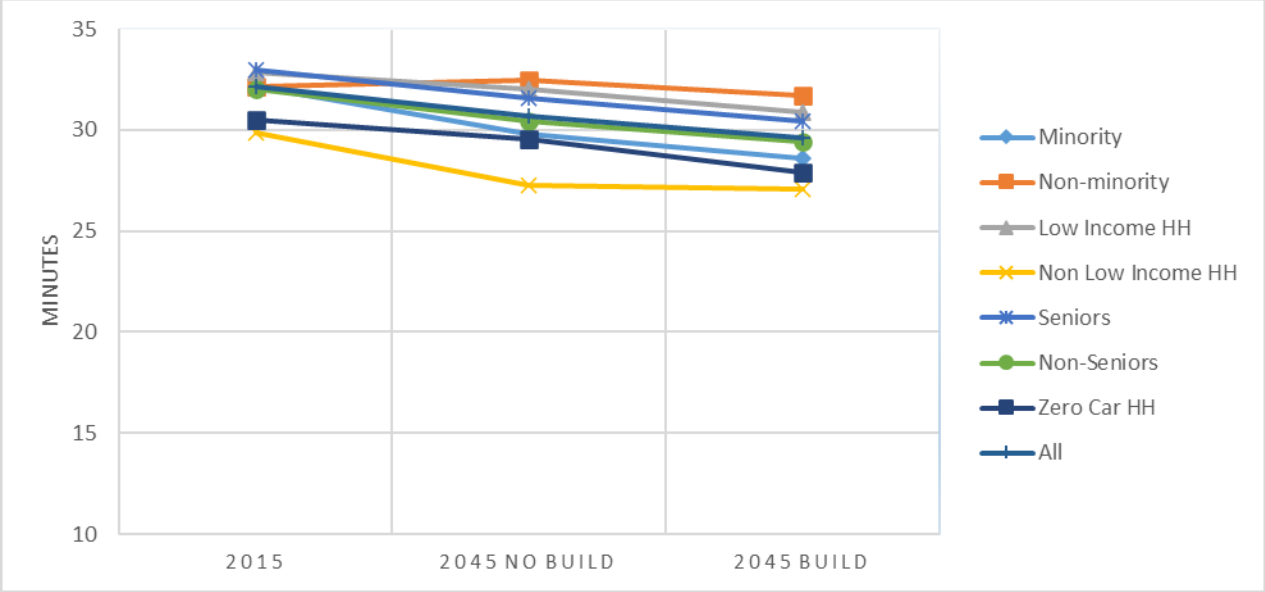



*Figure 22*
***Average Transit Travel time for Other purpose***




## Average Travel time for All purposes

Figure 23 shows that the regional average auto travel time for all purposes combined is less for target groups as compared to non-target groups, in each scenario. When compared across scenarios, the build

scenario travel times are less for each population group than no-build. Travel time savings are relatively similar for each of the target or non-target group.

*Figure 23*
***Average Auto Travel time for All purposes***

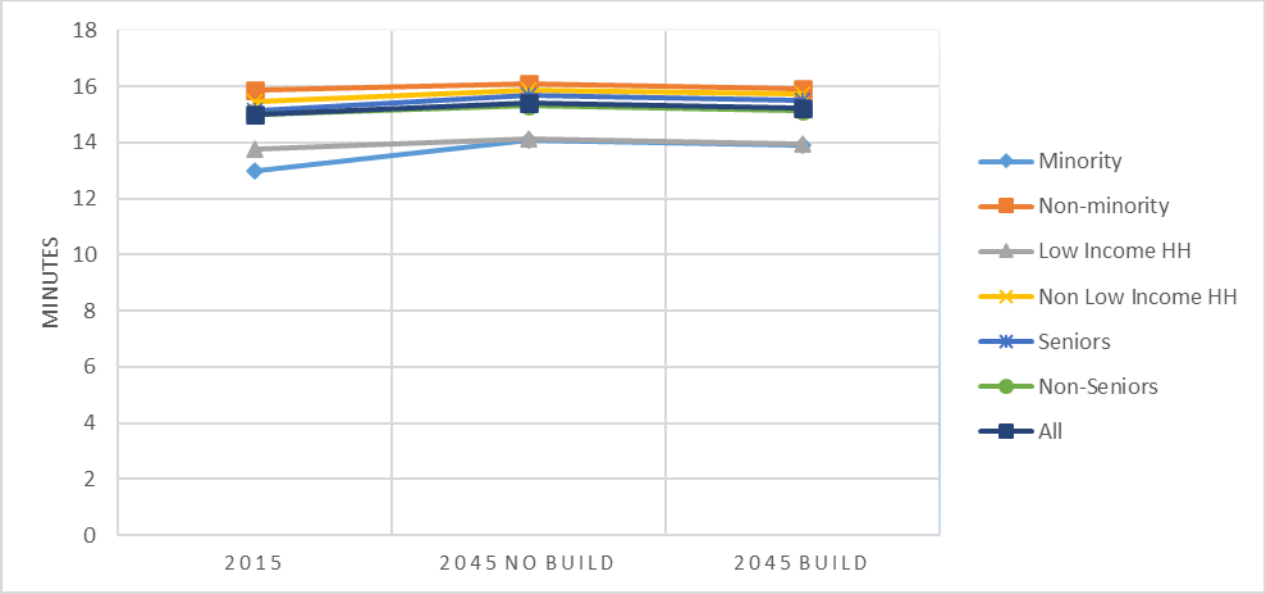
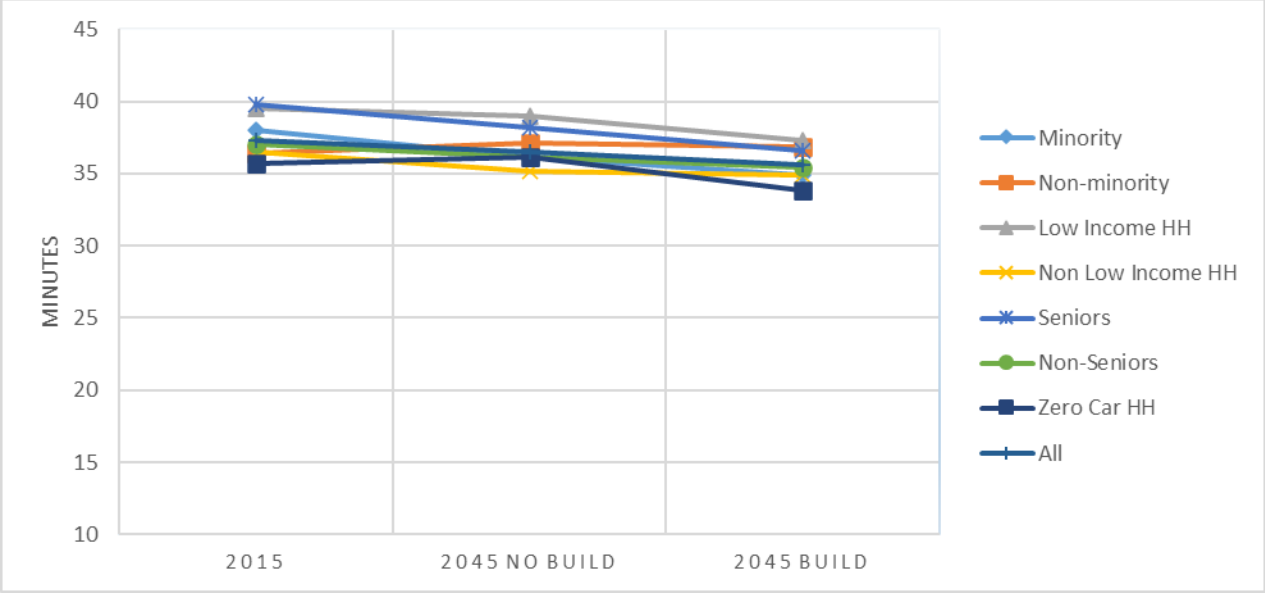



*Figure 24*
***Average Transit Travel time for All purposes***



## Per Capita Transportation Funding

Table 1 shows that the minority population in 2015 accrues a benefit from these projects of nearly $2,400 more per person in project costs compared to the balance of the population and $1,700 more for the forecasted 2045 minority population. Low income households in 2015 and those forecasted in 2045 are getting allocated roughly $3,800 and $3,000 respectively more per household in project costs compared to the balance of households. Additional analysis shows equity for seniors (persons age 65 or older) and for no car households.

*Table 1*
***Per Capita Transportation Funding***

| | Minorities | Non-Minorities |
|---|---|---|
| Population in 2015 | 1,446,083 | 3,276,681 |
| % of Population in 2015 | 30.6% | 69.4% |
| % of Total Project Costs | 36.8% | 63.2% |
| Per Capita Funding in 2015 | $9,932 | $7,518 |
| Per Capita Funding in 2045 | $8,760 | $7,018 |

| | Low Income | Non-Low Income |
|---|---|---|
| Households in 2015 | 465,635 | 1,396,869 |
| % of Households in 2015 | 25.0% | 75.0% |
| % of Total Project Costs | 28.4% | 71.6% |
| Per Household Funding in 2015 | $23,804 | $19,983 |
| Per Household Funding in 2045 | $21,058 | $17,979 |

| | Seniors | Non-Seniors |
|---|---|---|
| Population in 2015 | 696,810 | 4,025,954 |
| % of Population in 2015 | 14.8% | 85.2% |
| % of Total Project Costs | 14.5% | 85.5% |
| Per Capita Funding in 2015 | $8,107 | $8,284 |
| Per Capita Funding in 2045 | $7,395 | $7,711 |

| | No Car Households | Households with Cars |
|---|---|---|
| Households in 2015 | 158,368 | 1,704,136 |
| % of Households in 2015 | 8.5% | 91.5% |
| % of Total Project Costs | 10.7% | 89.3% |
| Per Household Funding in 2015 | $26,429 | $20,428 |
| Per Household Funding in 2045 | $22,277 | $18,404 |

# 5. Summary

The purpose of this analysis was to demonstrate the impact of the transportation plan on the various demographic groups in the region using quantitative measures, and to assess if there is a disproportionate negative impact of the plan on the target groups. Although these measures cannot encompass all the environmental justice issues, SEMCOG believes they are good indicators as to whether significant environmental justice issues are present.

In general, the measures did not suggest environmental justice issues at the regional system-wide level. In all the transportation scenarios, the target groups seem to have access to more jobs, shopping and other activities, or are close to a college, hospital or major shopping center. Average travel times for various purposes are also lower for target groups.

Comparing current and future no-build condition shows regional development pattern impact, without the transportation system improvements. Future land use policy should be studied to minimize the development impact on accessibility.

## Attachment A – Data Tables

*Table 2*
***Average Number of Jobs Accessible within 25 minutes AM peak period by auto***

| | 2015 | % of Total | 2045 No Build | % of Total | 2045 Build | % of Total | % Over No Build |
|---|---|---|---|---|---|---|---|
| Minority | 768,484 | 27.70% | 685,864 | 23.17% | 706,431 | 23.87% | 3.00% |
| Non-Minority | 441,860 | 15.93% | 447,768 | 15.13% | 460,290 | 15.55% | 2.80% |
| Low Income HH | 669,862 | 24.15% | 655,274 | 22.14% | 705,951 | 23.85% | 7.73% |
| Non Low Income HH | 508,531 | 18.33% | 496,845 | 16.79% | 509,011 | 17.20% | 2.45% |
| Seniors | 533,120 | 19.22% | 512,508 | 17.31% | 526,429 | 17.78% | 2.72% |
| Non-Seniors | 543,385 | 19.59% | 538,591 | 18.20% | 554,031 | 18.72% | 2.87% |
| All | 541,870 | 19.53% | 532,678 | 18.00% | 547,811 | 18.51% | 2.84% |
| Total Jobs in the region | | 2,774,223 | | 2,959,998 | | 2,959,998 | |

*Table 3*
***Average Number of Jobs Accessible within 50 minutes AM peak period by transit***

| | 2015 | % of Total | 2045 No Build | % of Total | 2045 Build | % of Total | % Over No Build |
|---|---|---|---|---|---|---|---|
| Minority | 165,435 | 5.96% | 146,543 | 4.95% | 167,935 | 5.67% | 14.60% |
| Non-Minority | 67,215 | 2.42% | 70,874 | 2.39% | 81,071 | 2.74% | 14.39% |
| Low Income HH | 141,656 | 5.11% | 139,466 | 4.71% | 171,878 | 5.81% | 23.24% |
| Non Low Income HH | 85,367 | 3.08% | 85,319 | 2.88% | 97,256 | 3.29% | 13.99% |
| Seniors | 91,129 | 3.28% | 91,182 | 3.08% | 104,319 | 3.52% | 14.41% |
| Non-Seniors | 98,356 | 3.55% | 99,816 | 3.37% | 114,180 | 3.86% | 14.39% |
| Zero-Car HH | 170,770 | 6.16% | 155,742 | 5.26% | 186,908 | 6.31% | 20.01% |
| All | 97,290 | 3.51% | 97,859 | 3.31% | 111,958 | 3.78% | 14.41% |
| Total Jobs in the region | | 2,774,223 | | 2,959,998 | | 2,959,998 | |

*Table 4*
***Average Shopping Area (acres) Accessible within 15 minutes mid-day period by auto***

| | 2015 | % of Total | 2045 No Build | % of Total | 2045 Build | % of Total | % Over No Build |
|---|---|---|---|---|---|---|---|
| Minority | 458 | 8.17% | 398 | 7.10% | 408 | 7.28% | 2.49% |
| Non-Minority | 271 | 4.83% | 258 | 4.61% | 265 | 4.73% | 2.56% |
| Low Income HH | 416 | 7.42% | 391 | 6.98% | 420 | 7.50% | 7.52% |
| Non Low Income HH | 303 | 5.41% | 282 | 5.04% | 290 | 5.17% | 2.69% |
| Seniors | 320 | 5.71% | 295 | 5.26% | 302 | 5.39% | 2.34% |
| Non-Seniors | 330 | 5.88% | 312 | 5.57% | 320 | 5.70% | 2.50% |
| All | 328 | 5.85% | 308 | 5.50% | 316 | 5.63% | 2.47% |
| Retail building space (acres) in the region | | 5,604 | | 5,604 | | 5,604 | |

*Table 5*
***Average Shopping area (acres) Accessible within 30 minutes mid-day period by transit***

| | 2015 | % of Total | 2045 No Build | % of Total | 2045 Build | % of Total | % Over No Build |
|---|---|---|---|---|---|---|---|
| Minority | 101 | 1.80% | 84 | 1.50% | 89 | 1.59% | 5.83% |
| Non-Minority | 46 | 0.82% | 46 | 0.81% | 48 | 0.85% | 5.05% |
| Low Income HH | 90 | 1.61% | 83 | 1.48% | 94 | 1.67% | 12.91% |
| Non Low Income HH | 56 | 1.00% | 52 | 0.93% | 55 | 0.98% | 4.78% |
| Seniors | 59 | 1.05% | 57 | 1.01% | 60 | 1.06% | 5.11% |
| Non-Seniors | 64 | 1.13% | 60 | 1.07% | 63 | 1.13% | 5.32% |
| Zero-Car HH | 104 | 1.86% | 90 | 1.60% | 99 | 1.77% | 10.47% |
| All | 63 | 1.12% | 59 | 1.05% | 63 | 1.12% | 5.93% |
| Retail building space (acres) in the region | | 5,604 | | 5,604 | | 5,604 | |

*Table 6*
***Average Number of Non-Shopping Opportunities Accessible within 15 minutes mid-day period by auto***

| | 2015 | % of Total | 2045 No Build | % of Total | 2045 Build | % of Total | % Over No Build |
|---|---|---|---|---|---|---|---|
| Minority | 308 | 8.11% | 270 | 7.09% | 275 | 7.22% | 1.82% |
| Non-Minority | 156 | 4.10% | 150 | 3.93% | 152 | 4.00% | 1.60% |
| Low Income HH | 275 | 7.22% | 260 | 6.83% | 282 | 7.42% | 8.62% |
| Non Low Income HH | 181 | 4.75% | 170 | 4.48% | 174 | 4.58% | 2.29% |
| Seniors | 192 | 5.06% | 178 | 4.68% | 181 | 4.76% | 1.80% |
| Non-Seniors | 204 | 5.37% | 197 | 5.17% | 200 | 5.25% | 1.58% |
| All | 203 | 5.33% | 192 | 5.06% | 196 | 5.14% | 1.66% |
| Number of non-shopping opportunities identified | | 3,803 | | 3,803 | | 3,803 | |

*Table 7*
***Average Number of Non-Shopping Opportunities Accessible within 30 minutes mid-day period by transit***

| | 2015 | % of Total | 2045 No Build | % of Total | 2045 Build | % of Total | % Over No Build |
|---|---|---|---|---|---|---|---|
| Minority | 68 | 1.78% | 58 | 1.53% | 62 | 1.64% | 6.87% |
| Non-Minority | 27 | 0.70% | 27 | 0.70% | 28 | 0.74% | 5.26% |
| Low Income HH | 59 | 1.56% | 56 | 1.47% | 64 | 1.69% | 15.05% |
| Non Low Income HH | 34 | 0.89% | 32 | 0.85% | 34 | 0.90% | 6.19% |
| Seniors | 35 | 0.93% | 34 | 0.90% | 37 | 0.96% | 6.40% |
| Non-Seniors | 40 | 1.05% | 39 | 1.02% | 41 | 1.08% | 5.91% |
| Zero-Car HH | 73 | 1.91% | 63 | 1.65% | 70 | 1.85% | 12.12% |
| All | 39 | 1.03% | 38 | 1.00% | 40 | 1.06% | 6.07% |
| Number of non-shopping opportunities identified | | 3,803 | | 3,803 | | 3,803 | |

*Table 8*

***Percent of Population or Households within 25 minutes AM peak period to a College by auto***

| | 2015 | 2045 No Build | 2045 Build |
|---|---|---|---|
| | | | |
| Minority | 97.7% | 91.9% | 92.5% |
| Non-Minority | 83.3% | 81.2% | 82.0% |
| Low Income HH | 93.4% | 91.1% | 92.8% |
| Not Low Income HH | 86.4% | 83.3% | 84.0% |
| Seniors | 87.3% | 83.4% | 84.1% |
| Non-Seniors | 87.7% | 85.5% | 86.2% |
| All | 87.7% | 85.0% | 85.7% |

*Table 9*

***Percent of Population or Households within 50 minutes AM peak period to a College by transit***

| | 2015 | 2045 No Build | 2045 Build |
|---|---|---|---|
| | | | |
| Minority | 71.9% | 61.6% | 62.8% |
| Non-Minority | 36.7% | 36.9% | 37.3% |
| Low Income HH | 63.8% | 60.4% | 65.6% |
| Not Low Income HH | 43.2% | 41.2% | 41.6% |
| Seniors | 46.2% | 43.2% | 43.5% |
| Non-Seniors | 47.7% | 46.4% | 47.1% |
| Zero-Car HH | 73.2% | 64.7% | 68.7% |
| All | 47.4% | 45.7% | 46.3% |

*Table 10*
***Percent of Population or Households within 15 minutes mid-day period to a Hospital by auto***

| | 2015 | 2045 No Build | 2045 Build |
|---|---|---|---|
| | | | |
| Minority | 94.7% | 86.0% | 86.4% |
| Non-Minority | 75.7% | 73.8% | 74.1% |
| Low Income HH | 90.0% | 86.7% | 88.7% |
| Not Low Income HH | 79.5% | 75.6% | 75.9% |
| Seniors | 81.0% | 76.5% | 76.7% |
| Non-Seniors | 81.6% | 78.6% | 79.0% |
| All | 81.5% | 78.1% | 78.5% |

*Table 11*
***Percent of Population or Households within 30 minutes mid-day period to a Hospital by transit***

| | 2015 | 2045 No Build | 2045 Build |
|---|---|---|---|
| | | | |
| Minority | 53.7% | 45.5% | 46.4% |
| Non-Minority | 26.9% | 27.3% | 27.7% |
| Low Income HH | 49.1% | 46.6% | 50.7% |
| Not Low Income HH | 31.8% | 30.1% | 30.3% |
| Seniors | 34.2% | 32.6% | 33.0% |
| Non-Seniors | 35.3% | 34.1% | 34.7% |
| Zero-Car HH | 56.4% | 49.3% | 52.2% |
| All | 35.1% | 33.8% | 34.3% |

*Table 12*

***Percent of Population or Households within 15 minutes mid-day period to a Major Retail Center by auto***

| | 2015 | 2045 No Build | 2045 Build |
|---|---|---|---|
| | | | |
| Minority | 70.4% | 65.2% | 67.3% |
| Non-Minority | 62.4% | 58.6% | 60.3% |
| Low Income HH | 71.0% | 67.2% | 70.4% |
| Not Low Income HH | 63.3% | 59.3% | 60.9% |
| Seniors | 64.0% | 59.6% | 61.1% |
| Non-Seniors | 65.0% | 61.3% | 63.2% |
| All | 64.9% | 60.9% | 62.8% |

*Table 13*

***Percent of Population or Households within 30 minutes mid-day period to a Major Retail Center by transit***

| | 2015 | 2045 No Build | 2045 Build |
|---|---|---|---|
| | | | |
| Minority | 20.5% | 18.0% | 18.1% |
| Non-Minority | 16.0% | 14.8% | 14.8% |
| Low Income HH | 22.0% | 19.2% | 21.6% |
| Not Low Income HH | 16.1% | 14.7% | 14.6% |
| Seniors | 16.0% | 15.3% | 15.6% |
| Non-Seniors | 17.6% | 16.1% | 16.1% |
| Zero-Car HH | 21.9% | 18.5% | 19.7% |
| All | 17.3% | 15.9% | 16.0% |

*Table 14*
***Average Auto Travel Time for Work purpose***

| | 2015 | 2045 No Build | % Inc over 2015 | 2045 Build | % Inc Over 2015 | 2045 Build Vs No Build | |
|---|---|---|---|---|---|---|---|
| | | | | | | Minutes Saved | % Minutes Saved |
| Minority | 20.23 | 22.13 | 9.4% | 21.93 | 8.4% | 0.20 | 0.90% |
| Non-Minority | 24.42 | 25.1 | 2.8% | 24.8 | 1.6% | 0.3 | 1.20% |
| Low Income HH | 19.05 | 19.66 | 3.2% | 19.41 | 1.9% | 0.25 | 1.27% |
| Not Low Income HH | 26.23 | 27.16 | 3.5% | 26.21 | -0.1% | 0.95 | 3.50% |
| Seniors | 23.38 | 24.41 | 4.4% | 24.15 | 3.3% | 0.26 | 1.07% |
| Non-Seniors | 23.3 | 24.04 | 3.2% | 23.77 | 2.0% | 0.27 | 1.12% |
| All | 23.31 | 24.13 | 3.5% | 23.86 | 2.4% | 0.27 | 1.12% |

*Table 15*
***Average Transit Travel Time for Work purpose***

| | 2015 | 2045 No Build | % Inc over 2015 | 2045 Build | % Inc Over 2015 | 2045 Build Vs No Build | |
|---|---|---|---|---|---|---|---|
| | | | | | | Minutes Saved | % Minutes Saved |
| Minority | 45.97 | 43.21 | -6.0% | 41.44 | -9.9% | 1.77 | 4.10% |
| Non-Minority | 43.94 | 44.24 | 0.7% | 43.04 | -2.0% | 1.2 | 2.71% |
| Low Income HH | 48.9 | 48.23 | -1.4% | 46.28 | -5.4% | 1.95 | 4.04% |
| Not Low Income HH | 40.36 | 38.41 | -4.8% | 38.9 | -3.6% | -0.49 | -1.28% |
| Seniors | 46.01 | 44.79 | -2.7% | 43.02 | -6.5% | 1.77 | 3.95% |
| Non-Seniors | 44.93 | 43.34 | -3.5% | 41.87 | -6.8% | 1.47 | 3.39% |
| Zero-Car HH | 43.76 | 43.19 | -1.3% | 40.81 | -6.7% | 2.38 | 5.51% |
| All | 45.07 | 43.64 | -3.2% | 42.1 | -6.6% | 1.54 | 3.53% |

*Table 16*
***Average Auto Travel Time for Shopping purpose***

| | 2015 | 2045 No Build | % Inc over 2015 | 2045 Build | % Inc Over 2015 | 2045 Build Vs No Build | |
|---|---|---|---|---|---|---|---|
| | | | | | | Minutes Saved | % Minutes Saved |
| Minority | 9.45 | 9.96 | 5.4% | 9.89 | 4.7% | 0.07 | 0.70% |
| Non-Minority | 10.88 | 11.05 | 1.6% | 10.96 | 0.7% | 0.09 | 0.81% |
| Low Income HH | 9.13 | 9.3 | 1.9% | 9.25 | 1.3% | 0.05 | 0.54% |
| Not Low Income HH | 10.89 | 11.13 | 2.2% | 11.08 | 1.7% | 0.05 | 0.45% |
| Seniors | 10.46 | 10.81 | 3.3% | 10.74 | 2.7% | 0.07 | 0.65% |
| Non-Seniors | 10.42 | 10.61 | 1.8% | 10.53 | 1.1% | 0.08 | 0.75% |
| All | 10.43 | 10.65 | 2.1% | 10.58 | 1.4% | 0.07 | 0.66% |

*Table 17*
***Average Transit Travel Time for Shopping purpose***

| | 2015 | 2045 No Build | % Inc over 2015 | 2045 Build | % Inc Over 2015 | 2045 Build Vs No Build | |
|---|---|---|---|---|---|---|---|
| | | | | | | Minutes Saved | % Minutes Saved |
| Minority | 29.33 | 27.96 | -4.7% | 26.45 | -9.8% | 1.51 | 5.40% |
| Non-Minority | 29.75 | 30.13 | 1.3% | 29.16 | -2.0% | 0.97 | 3.22% |
| Low Income HH | 29.63 | 29.02 | -2.1% | 27.57 | -7.0% | 1.45 | 5.00% |
| Not Low Income HH | 28.87 | 27.21 | -5.7% | 26.48 | -8.3% | 0.73 | 2.68% |
| Seniors | 29.43 | 29.12 | -1.1% | 27.81 | -5.5% | 1.31 | 4.50% |
| Non-Seniors | 29.46 | 28.46 | -3.4% | 27.07 | -8.1% | 1.39 | 4.88% |
| Zero-Car HH | 28.57 | 27.88 | -2.4% | 26.12 | -8.6% | 1.76 | 6.31% |
| All | 29.46 | 28.58 | -3.0% | 27.21 | -7.6% | 1.37 | 4.79% |

*Table 18*
***Average Auto Travel Time for Other purpose***

| | 2015 | 2045 No Build | % Inc over 2015 | 2045 Build | % Inc Over 2015 | 2045 Build Vs No Build | |
|---|---|---|---|---|---|---|---|
| | | | | | | Minutes Saved | % Minutes Saved |
| Minority | 10.91 | 11.68 | 7.1% | 11.59 | 6.2% | 0.09 | 0.77% |
| Non-Minority | 13.14 | 13.21 | 0.5% | 13.10 | -0.3% | 0.11 | 0.83% |
| Low Income HH | 10.34 | 10.51 | 1.6% | 10.45 | 1.1% | 0.06 | 0.57% |
| Not Low Income HH | 12.99 | 13.19 | 1.5% | 13.05 | 0.5% | 0.14 | 1.06% |
| Seniors | 12.55 | 12.9 | 2.8% | 12.8 | 2.0% | 0.1 | 0.78% |
| Non-Seniors | 12.47 | 12.61 | 1.1% | 12.5 | 0.2% | 0.11 | 0.87% |
| All | 12.48 | 12.67 | 1.5% | 12.57 | 0.7% | 0.1 | 0.79% |

*Table 19*
***Average Transit Travel Time for Other purpose***

| | 2015 | 2045 No Build | % Inc over 2015 | 2045 Build | % Inc Over 2015 | 2045 Build Vs No Build | |
|---|---|---|---|---|---|---|---|
| | | | | | | Minutes Saved | % Minutes Saved |
| Minority | 32.12 | 29.82 | -7.2% | 28.62 | -10.9% | 1.2 | 4.02% |
| Non-Minority | 32.14 | 32.44 | 0.9% | 31.71 | -1.3% | 0.73 | 2.25% |
| Low Income HH | 32.86 | 31.99 | -2.6% | 30.86 | -6.1% | 1.13 | 3.53% |
| Not Low Income HH | 29.88 | 27.24 | -8.8% | 27.05 | -9.5% | 0.19 | 0.70% |
| Seniors | 33 | 31.59 | -4.3% | 30.44 | -7.8% | 1.15 | 3.64% |
| Non-Seniors | 32 | 30.45 | -4.8% | 29.41 | -8.1% | 1.04 | 3.42% |
| Zero-Car HH | 30.51 | 29.52 | -3.2% | 27.92 | -8.5% | 1.6 | 5.42% |
| All | 32.13 | 30.66 | -4.6% | 29.61 | -7.8% | 1.05 | 3.42% |

*Table 20*
***Average Auto Travel Time for All purposes***

| | 2015 | 2045 No Build | % Inc over 2015 | 2045 Build | % Inc Over 2015 | 2045 Build Vs No Build | |
|---|---|---|---|---|---|---|---|
| | | | | | | Minutes Saved | % Minutes Saved |
| Minority | 12.97 | 14.06 | 8.4% | 13.92 | 7.3% | 0.14 | 1.00% |
| Non-Minority | 15.85 | 16.11 | 1.6% | 15.93 | 0.5% | 0.18 | 1.12% |
| Low Income HH | 13.74 | 14.12 | 2.8% | 13.96 | 1.6% | 0.16 | 1.13% |
| Not Low Income HH | 15.44 | 15.84 | 2.6% | 15.73 | 1.9% | 0.11 | 0.69% |
| Seniors | 15.12 | 15.67 | 3.6% | 15.51 | 2.6% | 0.16 | 1.02% |
| Non-Seniors | 14.98 | 15.31 | 2.2% | 15.15 | 1.1% | 0.16 | 1.05% |
| All | 15 | 15.39 | 2.6% | 15.23 | 1.5% | 0.16 | 1.04% |

*Table 21*
***Average Transit Travel Time for All purposes***

| | 2015 | 2045 No Build | % Inc over 2015 | 2045 Build | % Inc Over 2015 | 2045 Build Vs No Build | |
|---|---|---|---|---|---|---|---|
| | | | | | | Minutes Saved | % Minutes Saved |
| | | | | | | | |
| Minority | 38 | 36.12 | -4.9% | 34.86 | -8.3% | 1.26 | 3.49% |
| Non-Minority | 36.45 | 37.09 | 1.8% | 36.82 | 1.0% | 0.27 | 0.73% |
| Low Income HH | 39.55 | 38.99 | -1.4% | 37.25 | -5.8% | 1.74 | 4.46% |
| Not Low Income HH | 36.47 | 35.19 | -3.5% | 34.88 | -4.4% | 0.31 | 0.88% |
| Seniors | 39.8 | 38.18 | -4.1% | 36.57 | -8.1% | 1.61 | 4.22% |
| Non-Seniors | 36.99 | 36.12 | -2.4% | 35.42 | -4.2% | 0.7 | 1.94% |
| Zero-Car HH | 35.67 | 36.16 | 1.4% | 33.86 | -5.1% | 2.3 | 6.36% |
| All | 37.32 | 36.52 | -2.1% | 35.64 | -4.5% | 0.88 | 2.41% |

*Table 22*
***Major Regional Colleges***

| |
|---|
| Eastern Michigan University |
| Henry Ford Community College |
| Lawrence Technological University |
| Macomb Community College, Central Campus |
| Macomb Community College, South Campus |
| Madonna University |
| Marygrove College |
| Monroe County Community College |
| Oakland Community College, Auburn Hills Campus |
| Oakland Community College, Highland Lakes Campus |
| Oakland Community College, Orchard Ridge Campus |
| Oakland Community College, Royal Oak Campus |
| Oakland Community College, Southfield Campus |
| Oakland University |
| Schoolcraft College |
| St. Clair County Community College |
| University of Detroit Mercy |
| University of Michigan-Ann Arbor |
| University of Michigan-Dearborn |
| Walsh College |
| Washtenaw Community College |
| Wayne County Community College District, Downriver Campus |
| Wayne County Community College District, Downtown Campus |
| Wayne County Community College District, Eastern Campus |
| Wayne County Community College District, Northwestern Campus |
| Wayne County Community College District, Western Campus |
| Wayne State University |

*Table 23*
***Major Regional Hospitals***

| |
|---|
| Beaumont Health System, Grosse Pointe |
| Beaumont Health System, Royal Oak |
| Beaumont Hospital, Dearborn |
| Beaumont Hospital, Farmington Hills |
| Beaumont Hospital, Taylor |
| Beaumont Hospital, Trenton |
| Beaumont Hospital, Wayne |
| Beaumont Hospital, Troy |
| Crittenton Hospital Medical Center |
| Detroit Medical Center, Receiving Hospital |
| Detroit Medical Center, Hutzel Women'S Hospital |
| Detroit Medical Center, Harper University Hospital |
| Detroit Medical Center, Rehabilitation Institute |
| Detroit Medical Center, Children'S Hospital |
| Forest Health Medical Center |
| Garden City Hospital |
| Henry Ford Health Center,Brownstown |
| Henry Ford Hospital |
| Henry Ford Medical Center, Cottage |
| Henry Ford Medical Center, Detroit Northwest |
| Henry Ford Medical Center, Fairlane |
| Henry Ford Medical Center, Sterling Heights |
| Henry Ford West Bloomfield Hospital |
| Henry Ford Wyandotte Hospital |
| Huron Valley-Sinai Hospital |
| Lake Huron Medical Center |

| |
|---|
| Mclaren Macomb |
| Mclaren Oakland |
| Mclaren Port Huron |
| Oakland Regional Hospital |
| Oakwood Healthcare Center |
| Pontiac General Hospital |
| Promedica Monroe Regional Hospital |
| Providence Hospital |
| Providence Park Hospital |
| Saint Joseph Mercy Livingston Hospital |
| Select Specialty Hospital - Macomb County |
| Sinai-Grace Hospital |
| Southeast Michigan Surgical Hospital |
| St John Hospital And Medical Center |
| St John Macomb-Oakland Hospital, Macomb Center |
| St John Macomb-Oakland Hospital, Madison Heights |
| St John River District Hospital |
| St Joseph Mercy Hospital |
| St Joseph Mercy Oakland |
| St Mary Mercy Hospital |
| St. John Providence Health System |
| St. Joseph Mercy Chelsea |
| Straith Hospital For Special Surgery |
| University Of Michigan Health System |

*Table 24*
***Major Regional Shopping Centers***

| |
|---|
| Birchwood Mall |
| Briarwood Mall |
| Cabela's Inc. |
| Eastland Center |
| Fairlane North |
| Fairlane Town Center |
| Fountain Walk |
| Great Lakes Crossing Mall |
| IKEA (Redevelopment) |
| Lakeside Mall |
| Macomb Mall |
| Oakland Mall |
| Somerset Collection North |
| Southland Mall |
| Tanger Outlets of Howell, MI |
| The Mall at Partridge Creek |
| The Village of Rochester Hills |
| Twelve Oaks Mall |
| West Oaks |
| Westland Mall |
| Birchwood Mall |
| Briarwood Mall |
| Cabela's Inc. |
| Eastland Center |
| Fairlane North |
| Fairlane Town Center |

## Possible Project Impacts

| Project Type (Total Number of Projects Planned) | Number of Projects Potentially Impacting Resources | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Water Resources[1] | Wetlands | Flood Prone Areas | Groundwater Resources[2] | Woodlands | Parks & Recreation Areas | Historic Sites | Cemeteries | Heritage Routes Natural Beauty Roads | Historic Bridges | Nonmotorized Facilities |
| Bridge (134 projects) | 74 | 46 | 58 | 4 | 126 | 30 | 6 | 1 | 8 | 4 | 16 |
| Congestion - Capacity (22 projects) | 19 | 19 | 8 | 2 | 22 | 3 | 0 | 1 | 1 | 1 | 5 |
| Congestion - Non-Capacity (43 projects) | 24 | 23 | 10 | 6 | 43 | 12 | 4 | 2 | 6 | 0 | 4 |
| Nonmotorized (23 projects) | 14 | 10 | 10 | 2 | 23 | 11 | 4 | 1 | 4 | 0 | 3 |
| Pavement (274 projects) | 220 | 192 | 115 | 23 | 274 | 73 | 28 | 25 | 20 | 3 | 49 |
| Rail (3 projects) | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 |

[1]Water resources consist of lakes and streams, designated trout lakes/streams, and Natural Rivers.
[2]Groundwater resources consist of wellhead protection areas and sinkholes.
Source: SEMCOG.

# Ozone and Fine Particulate Matter ($PM_{2.5}$) Conformity Analysis

***For 2023 Summer Amendment of SEMCOG's 2045 Regional Transportation Plan and FY 2023-FY 2026 Transportation Improvement Program***

**(Draft for Comments)**

**June 22, 2023**

Prepared by the
Southeast Michigan Council of Governments (SEMCOG)
1001 Woodward Avenue, Suite 1400
Detroit, MI 48226
(313) 961-4266

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## Introduction

The federal Clean Air Act requires that federally funded highway and transit projects contained in regional long-range transportation plans (RTP) and Transportation Improvement Programs (TIP) be consistent with the air quality goals established in state air quality implementation plans (SIP). The process for demonstrating this consistency is called Air Quality Conformity. The purpose of Conformity is to ensure that projects in the plan will not cause new air quality violations, worsen any existing violations, or delay timely attainment of National Ambient Air Quality Standards (NAAQS).

The U.S. Environmental Protection Agency (EPA) has established NAAQS for six criteria air pollutants: carbon monoxide, lead, ground-level ozone, nitrogen dioxide, sulfur dioxide, and particulate matter. EPA designates an area as either "attainment" or "nonattainment" for each of these pollutants based on whether local air monitoring data shows it is meeting or not meeting these standards. Areas that were initially designated as "nonattainment" for a particular standard but later attain that standard are termed "maintenance" areas.

### Pollutants Analyzed for Transportation Conformity in Southeast Michigan

Air quality transportation conformity analysis is required for the entire seven-county region of southeast Michigan due to its designated status of "nonattainment" or "maintenance" for, particulate matter and ozone. Below is a summary of southeast Michigan's current air quality status for each of these two pollutants.

- Fine Particulate Matter ($PM_{2.5}$): The entire seven-county region was originally designated nonattainment for both the 1997 annual (15 $\mu g/m^3$) and 2006 24-hour (35 $\mu g/m^3$) $PM_{2.5}$ standards. However, since the implementation of Michigan's State Implementation Plan (SIP) for this pollutant, levels have declined significantly, and all air monitors have been measuring levels well below the standards since 2009. Consequently, the U.S. EPA has re-designated the region as a "maintenance area" for these two standards in 2013. In 2015, southeast Michigan was designated as "attainment" for the tougher 2012 annual standard (12 $\mu g/m^3$) and the 1997 annual standard was revoked by the EPA in 2016. Thus, conformity analysis for this pollutant is only required for the 24-hour standard for the region.
- Ozone: The entire region was originally designated nonattainment for the 1997 ozone NAAQS of 0.08 ppm. Following successful implementation of Michigan's SIP for this pollutant, the region was re-designated as "maintenance" in 2009. In 2012, Southeast Michigan was designated as "attainment" for the 2008 ozone NAAQS of 0.075 ppm. In 2018, the entire seven-county region was designated nonattainment for the new stricter 2015 ozone NAAQS of 0.070 ppm by the EPA. However, since the implementation of Michigan's SIP for this pollutant, all air monitors have been measuring levels below the standards. Therefore, on January 3, 2022, the Michigan department of Environment, Great Lakes, and Energy (EGLE) submitted the request to redesignate the area to attainment for the 2015 ozone NAAQS. On May 19, 2023, the EPA approved the request and redesignated the region to "attainment/maintenance area" for the 2015 ozone NAAQS. At the same time, the EPA also approved the 2025 and 2035 VOC and NOx motor vehicle emissions budgets included in Michigan's plan for maintaining the 2015 ozone NAAQS through 2035 in the region. Thus, conformity analysis for this pollutant is required for the region.

**Overview of Conformity Analysis Process**

To analyze conformity, emissions generated by all vehicles on Southeast Michigan's roadway system are estimated using a complex set of computer models. The models estimate the expected change in these emissions due to the combination of:

- Anticipated growth in the region, and
- The implementation of regionally significant transportation projects that either increase or decrease roadway capacity (e.g., building of new roads, adding or reducing the number of traffic lanes on existing roads). The impact of major transit projects is also included.

This report provides the results of SEMCOG's air quality conformity analysis for SEMCOG's 2045 RTP and the Fiscal Year (FY) 2023-FY 2026 TIP, as well as detailed documentation on the modeling process used to conduct this analysis.

## 1. Results of Transportation Conformity Analysis

### A. 24-Hour Fine Particulate Matter ($PM_{2.5}$)

Table 1 shows the results of the 24-hour fine particulate matter ($PM_{2.5}$) conformity analysis for the Southeast Michigan attainment/maintenance area. This area includes the entire seven-county SEMCOG region. In accordance with EPA conformity guidance on the 24-hour $PM_{2.5}$ standard, the analysis uses daily emissions inventories for the season in which most 24-hour $PM_{2.5}$ violations occur. Research by the EGLE and SEMCOG's Air Quality Study (SEMAQS) group found that $PM_{2.5}$ concentrations in Southeast Michigan tend to be highest during the winter season. Thus, vehicle emissions for an average winter day are used for this conformity analysis.

On-road mobile source emission budgets for the 24-hour standard were approved by the EPA in 2013, when the region was re-designated as an attainment/maintenance area. Conformity is demonstrated if forecasted 24-hour $PM_{2.5}$ and nitrogen oxide ($NO_x$) emissions for specific future years do not exceed these budgets. The data in Table 1 show that forecasted emissions of both $PM_{2.5}$ and $NO_x$ are well below the established budgets for all analysis years. Thus, conformity is demonstrated.

**Table 1: Results of Daily $PM_{2.5}$ Conformity Analysis -Budget Emissions Test**

| Analysis Year | Emissions (Tons per winter weekday) | | Regional Winter Weekday VMT (millions) |
|---|---|---|---|
| | Primary $PM_{2.5}$ | $NO_x$ | |
| Conformity Budget | 16 | 365 | NA |
| 2025 | 2.89 | 60.68 | 116.37 |
| 2035 | 2.28 | 41.40 | 120.22 |
| 2045 | 2.24 | 39.86 | 122.66 |

### B. Ozone

Table 2 shows the results of the ozone conformity analysis for SEMCOG's 2015 ozone "attainment/maintenance" area. This area includes the entire seven-county SEMCOG region. Conformity is demonstrated if forecasted emissions for specific future years do not exceed the EPA-approved mobile source emission budgets set forth in Michigan's State

Implementation Plan (SIP) for maintaining the 2015 ozone NAAQS through 2035 in the region.

The data in Table 2 show that forecasted emissions in the SEMCOG region for the two pollutants causing ozone formation - volatile organic compounds (VOC) and nitrogen oxides ($NO_x$) - are below the approved mobile source emissions budgets of 2015 ozone for all analysis years. Thus, conformity is demonstrated.

**Table 2: Results of 8-Hour Ozone Conformity Analysis -Budget Emissions Test**

| Analysis Year | Emissions (Tons per summer weekday) | | Regional Summer Weekday VMT (millions) |
|---|---|---|---|
| | VOC | $NO_x$ | |
| Conformity Budget - 2025 Interim Year | **47.86** | **104.35** | NA |
| 2025 | 34.12 | 60.95 | 139.30 |
| Conformity Budget -2035 Maintenance Year | **44.67** | **102.41** | NA |
| 2035 | 21.92 | 40.34 | 143.90 |
| 2045 | 20.07 | 38.56 | 146.82 |

## 2. Projects Included in the Conformity Analysis

This analysis included all capacity-related projects proposed for the 2023 Summer amendment of SEMCOG's FY 2023-FY 2026 TIP and the 2045 RTP, plus those already in SEMCOG's 2045 RTP. A complete list of the projects included in this analysis can be found in Appendix A.

## 3. Coordination With Michigan Transportation Conformity Interagency Workgroup

### A. Coordination Process

On June 1st, the Michigan Transportation Conformity Interagency Workgroup (MITC-IAWG) held a conference call to review proposed projects of SEMCOG's 2023 Summer amendment. A summary of this call is provided in Appendix B, along with the list of projects being reviewed during the call. The results of the conformity analysis are documented in Section 1 above. A copy of this conformity analysis documentation was sent to each member of the MITC-IAWG for review and comment.

### B. MITC-IAWG Comments and Responses

No comments received to date.

## 4. Description of Public Participation Process

### A. Public Involvement

A public comment period for the 2023 Summer amendment was initiated on June 26, 2023, and concluded on July 27, 2023, when SEMCOG's Executive Committee formally adopted both documents. Public notices were emailed to a broad cross section that included interested

citizens, advocacy groups, community organizations, and municipal clerks. The notice was also sent to the media, public libraries, published in SEMCOG's biweekly electronic newsletter, and posted on its Web site and social media pages.

### B. Public Comments and Responses

No comments received to date.

## 5. Formal MPO Action Supporting the Conformity Determination

SEMCOG committee action on the 2023 Summer amendment of SEMCOG's 2045 RTP and FY 2023 - FY 2026 TIP:

- Transportation Coordinating Council (TCC), July 20, 2023
- Executive Committee, July 27, 2023

## 6. Key Modeling Inputs and Assumptions for SEMCOG Area

### A. MOVES Model Run Specifications

EPA's MOVES version MOVES3.0.3 was used to perform this transportation conformity analysis.

For ozone and $PM_{2.5}$, MOVES' County level run was utilized, and Wayne County was chosen to represent the fuel characteristics used in all seven SEMCOG counties. These seven counties comprise Southeast Michigan's ozone maintenance area for the 1997 National Air Ambient Quality Standard (NAAQS) and ozone nonattainment area for the 2015 NAAQS. As ozone conformity analysis involves generating emissions for a high-ozone summer weekday, only weekday emissions were specified in MOVES. The simulated ozone meteorological data was used for the month of July to represent the typical summer day. These seven counties also reflect the attainment /maintenance area for the 2006 24-hour $PM_{2.5}$ NAAQS. MOVES runs for this pollutant specify the weekdays of the three winter months: December, January and February since previous monitoring data has shown $PM_{2.5}$ emissions are highest during these months. Although Wayne County was chosen to represent the whole region geographically in MOVES runs, all local inputs were developed to represent the transportation activities in all seven SEMCOG counties.

More information on the development of these local inputs is provided in specific sections below.

## B. Description of Local Travel Data Inputs

### 1) Demographic Data

Travel forecasts used to calculate on-road mobile source emissions for the conformity analysis are based on demographic data from SEMCOG's 2045 Regional Development Forecast (RDF). A three-step process was used to develop this forecast.

a) Regional forecast totals of population and jobs were generated from the REMI (Regional Economic Models, Inc.) model. The model forecasts Southeast Michigan's ability to attract and retain population and jobs relative to all other parts of the United States. Regional totals were developed for all forecast years from the 2015 base year to 2045;

b) The regional totals were then used to develop a small-area forecast that disaggregates regional population, households and jobs into 1.8 million land parcels using the UrbanSim model. UrbanSim is a computer simulation model for planning and analysis of urban development. It incorporates the interaction between land use, transportation, and public policy. In doing so, it finds the most desirable land parcels for future population and jobs, and models residential and nonresidential developments as demand changes.

c) Land parcels from the small-area forecast were aggregated to traffic analysis zones (TAZs) for use in SEMCOG's travel demand forecasting model.

### 2) SEMCOG's Travel Demand Forecasting Model (TDFM)

Vehicle miles of travel (VMT) forecasts for the on-road emissions inventory were developed using version E7 of SEMCOG's Travel Demand Forecasting Model (TDFM), which was implemented in 2018 using SEMCOG's 2015 household travel survey and observation data. The TDFM runs on the TransCAD software platform and utilizes the standard four-step travel modeling process: trip generation, trip distribution, mode choice, and traffic assignment. Detailed documentation on the model is contained in a separate SEMCOG document that is available upon request.

### 3) Mapping of Travel Demand Model (TDFM) Functional Classes and Area Types to MOVES Road Types

To use TDFM data in MOVES, the road types used in SEMCOG's model must be reconciled with those used in MOVES. The MOVES model uses four basic road types for on-road activities: Urban Restricted, Urban Unrestricted, Rural Restricted and Rural Unrestricted. The term, "restricted", refers to restricted or limited-access roadways. In the SEMCOG region, this includes all freeway facilities. All other roadways in the SEMCOG region are considered unrestricted facilities. The TDFM also includes several special functional classes that are not part of the regular roadway network (e.g. walk only, external zone connectors, transit-only links)..

As TDFM functional classes do not distinguish between urban and rural facilities, another TDFM variable, Area Type, was used as a surrogate. The TDFM defines five area types (urban business, urban fringe, urban, suburban and rural) and assigns one to each roadway link based on the density of households, population and employment in the traffic analysis zone in which the link resides.

Table 3 shows how each area type and functional class in SEMCOG's TDFM is mapped to the four road types used in MOVES.

***Table 3: Mapping of TDFM Functional Class and Area Type to MOVES Road Type***

<table>
<tr><th rowspan="2">SEMCOG TDFM<br>Functional Class</th><th colspan="5">SEMCOG TDFM Area Type</th></tr>
<tr><th>Urban Business</th><th>Urban Fringe</th><th>Urban</th><th>Suburban</th><th>Rural</th></tr>
<tr><td>1 - Interstate Freeway</td><td colspan="4" rowspan="2">4 – MOVES Urban Restricted Road Type</td><td rowspan="2">2 – MOVES Rural Restricted Road Type</td></tr>
<tr><td>2 - Other Freeway</td></tr>
<tr><td>3 - Principal Arterial</td><td colspan="4" rowspan="6">5 – MOVES Urban Unrestricted Road Type</td><td rowspan="6">3 – MOVES Rural Unrestricted Road Type</td></tr>
<tr><td>4 - Minor Arterial</td></tr>
<tr><td>5/6 - Collector</td></tr>
<tr><td>7 - Local</td></tr>
<tr><td>9 - Uncertified Road</td></tr>
<tr><td>99 - Centroid connector (local road surrogate)</td></tr>
<tr><td>81 - 94 Transit Use Only</td><td colspan="5" rowspan="3">Non-road or outside region. Not used in MOVES</td></tr>
<tr><td>90 - External</td></tr>
<tr><td>96 - Walk Only</td></tr>
</table>

4) **Vehicle Miles of Travel (VMT)**

MOVESprovides an option to input annual VMT by the six FHWA Highway Performance Monitoring System (HPMS) vehicle types with the passenger car (HPMS 20) and other 4-tire/2-axle vehicles (HPMS 30) combined as HPMS25.

- HPMS10 – Motorcycle;
- HPMS25 - Passenger car and Other 4-tire, 2-axle vehicles;
- HPMS40 – Bus;
- HPMS50 - Single unit truck;
- HPMS60 - Combination truck.

Local VMT data used in the MOVES model is derived from SEMCOG's Travel Demand Forecasting Model (TDFM). The model generates average weekday VMT forecasts and does not currently have the capability to allocate this VMT to different vehicle types. The remaining part of this section describes the adjustment factors required to convert the TDFM data into the format required for MOVES.

**a) HPMS Normalization**

In accordance with EPA and FHWA guidance, SEMCOG TDFM VMT was normalized to HPMS VMT by county and road type. Normalization factors were

developed by dividing 2015 HPMS VMT by the estimated 2015 VMT from regional TDFM. Table 4 shows the resulting factors. These factors were applied to TDFM VMT in all analysis years.

***Table 4: HPMS Normalization Factors***

| County | Road Type | |
|---|---|---|
| | Restricted | Unrestricted |
| Livingston | 1.06146 | 0.96310 |
| Macomb | 0.92232 | 0.97739 |
| Monroe | 0.90947 | 1.12472 |
| Oakland | 0.94420 | 0.96211 |
| St Clair | 0.88407 | 1.41495 |
| Washtenaw | 0.92334 | 0.99751 |
| Wayne | 0.92180 | 1.21861 |

**b) Distribution of VMT Among HPMS Vehicle Types**

Two sets of distribution factors for restricted and unrestricted roadways have been developed to allocate the total VMT of an analysis year among five vehicle classes as described at the beginning of this section.

Every year, MDOT collects permanent traffic recording (PTR) counts, which includes vehicle classification counts from 13 freeway stations through SEMCOG region. These 2015 PTR classification counts were used to develop the average distribution factors for restricted roadways.

Every five years beginning in 2005, SEMCOG has been collecting screen line counts, which are mostly non-freeway counts, throughout the seven-county SEMCOG region. The 2015 screen line traffic count was used to develop VMT distribution factors for unrestricted roadways.

Both counts collected from MDOT and SEMCOG were classified based on FHWA's standard 13 traffic bins. These bins were aggregated to five vehicle classes required by MOVES. The factors derived from these counts are shown in Table 5.

***Table 5: VMT Distribution Factors by HPMS Vehicle Type***

| HPMS Vehicle Type | Restricted | Unrestricted |
|---|---|---|
| H10 – Motorcycle | 0.00276 | 0.00589 |
| H25 - Passenger Car and Other 4-tire, 2-axle vehicles | 0.89201 | 0.90783 |
| H40 – Bus | 0.00166 | 0.00442 |
| H50 - Single-Unit Truck | 0.01931 | 0.05772 |
| H60 - Combination Truck | 0.08426 | 0.02414 |

**c) Conversion of Average Weekday VMT to Annual VMT**

Monthly and weekend adjustment factors were developed using 2014-2016 count data from the 35 PTR stations in Southeast Michigan. Monthly adjustment factors for motorcycles were developed separately due to its significant difference from other vehicle types. Weekend adjustment factors were developed for each of the five vehicle types since significant variations were shown between one another. These adjustment factors (shown in Table 6), along with the HPMS-normalized weekday VMT by vehicle types, were then entered EPA's AADVMT converter of "*aadvmt-conveter-tool-moves2014.xls"* to compute the annual VMT, monthly and daily VMT fractions needed for MOVES3

***Table 6: Monthly and Weekend Adjustment Factors***

| Month | Monthly Adjustment Factors | | Weekend Adjustment Factors | | | | |
|---|---|---|---|---|---|---|---|
| | Motorcycle | Others | H10 | H25 | H40 | H50 | H60 |
| Jan | 0.61591 | 0.84277 | 0.74004 | 0.76880 | 0.50814 | 0.31258 | 0.34568 |
| Feb | 0.64898 | 0.89507 | 0.72627 | 0.74810 | 0.53906 | 0.28693 | 0.32378 |
| Mar | 0.70943 | 0.97283 | 0.78072 | 0.80027 | 0.56487 | 0.28654 | 0.32074 |
| Apr | 0.86564 | 1.01831 | 1.06431 | 0.80995 | 0.56013 | 0.30115 | 0.30696 |
| May | 1.18817 | 1.03520 | 1.00755 | 0.82747 | 0.51042 | 0.31796 | 0.31331 |
| Jun | 1.39409 | 1.08036 | 1.09094 | 0.82842 | 0.53217 | 0.34252 | 0.32225 |
| Jul | 1.47548 | 1.06434 | 1.04333 | 0.83058 | 0.61693 | 0.34956 | 0.31060 |
| Aug | 1.42116 | 1.07990 | 1.07714 | 0.85262 | 0.61017 | 0.36666 | 0.32662 |
| Sep | 1.29399 | 1.04244 | 1.02136 | 0.85271 | 0.61270 | 0.36014 | 0.32851 |
| Oct | 0.95050 | 1.04384 | 0.84475 | 0.82973 | 0.63029 | 0.33629 | 0.33077 |
| Nov | 0.78996 | 0.98673 | 0.72377 | 0.79581 | 0.61643 | 0.32037 | 0.34036 |
| Dec | 0.64280 | 0.93822 | 0.77974 | 0.78883 | 0.52432 | 0.31239 | 0.34840 |

***Table 7: Weekday Hourly Fractions for Restricted Road Types***

| HOUR | H10 | H25 | H40 | H50 | H60 | Total |
|---|---|---|---|---|---|---|
| 1 | 0.00901 | 0.00853 | 0.01300 | 0.00685 | 0.01929 | 0.00941 |
| 2 | 0.00506 | 0.00508 | 0.01077 | 0.00607 | 0.01775 | 0.00618 |
| 3 | 0.00495 | 0.00412 | 0.01079 | 0.00671 | 0.01748 | 0.00531 |
| 4 | 0.00572 | 0.00487 | 0.01220 | 0.00855 | 0.01974 | 0.00621 |
| 5 | 0.01331 | 0.01094 | 0.01839 | 0.01323 | 0.02500 | 0.01218 |
| 6 | 0.03873 | 0.02914 | 0.02854 | 0.02445 | 0.03304 | 0.02940 |
| 7 | 0.05610 | 0.05634 | 0.04263 | 0.05114 | 0.04400 | 0.05518 |
| 8 | 0.05897 | 0.07031 | 0.05985 | 0.06570 | 0.04968 | 0.06843 |
| 9 | 0.05187 | 0.06151 | 0.06112 | 0.07814 | 0.05658 | 0.06139 |
| 10 | 0.04527 | 0.04812 | 0.06610 | 0.07654 | 0.06325 | 0.04996 |
| 11 | 0.04491 | 0.04411 | 0.06347 | 0.07401 | 0.06555 | 0.04653 |
| 12 | 0.04792 | 0.04569 | 0.05739 | 0.07388 | 0.06606 | 0.04798 |
| 13 | 0.05076 | 0.04846 | 0.06006 | 0.07350 | 0.06413 | 0.05029 |
| 14 | 0.05422 | 0.05120 | 0.06267 | 0.07587 | 0.06291 | 0.05269 |
| 15 | 0.06414 | 0.06073 | 0.06700 | 0.07750 | 0.06062 | 0.06107 |
| 16 | 0.07425 | 0.07509 | 0.06726 | 0.07268 | 0.05566 | 0.07339 |
| 17 | 0.07592 | 0.08344 | 0.05918 | 0.06113 | 0.04929 | 0.08007 |
| 18 | 0.07156 | 0.08323 | 0.05087 | 0.04636 | 0.04353 | 0.07909 |
| 19 | 0.06320 | 0.06326 | 0.04795 | 0.03500 | 0.04076 | 0.06079 |
| 20 | 0.04912 | 0.04401 | 0.03725 | 0.02398 | 0.03570 | 0.04292 |
| 21 | 0.03837 | 0.03466 | 0.02944 | 0.01737 | 0.03160 | 0.03407 |
| 22 | 0.03307 | 0.02891 | 0.03085 | 0.01314 | 0.02904 | 0.02863 |
| 23 | 0.02533 | 0.02233 | 0.02336 | 0.01009 | 0.02620 | 0.02243 |
| 24 | 0.01823 | 0.01591 | 0.01989 | 0.00810 | 0.02316 | 0.01638 |

## 5) Hourly VMT Fractions

Two different data sources were used to develop hourly VMT fractions for MOVES:

- 2015 screen line traffic counts collected by SEMCOG - All screen line counts include classification data but were only collected on weekdays.
- 2015 PTR counts for locations within the SEMCOG region - This data includes both weekdays and weekends. All the count stations are on freeways and only a limited number of these stations collect classification data.

Using this data, SEMCOG was able to develop weekday hourly VMT fractions for each of five HPMS vehicle types by restricted (shown in Table 7) and unrestricted MOVES road types (shown in Table 8).

***Table 8: Weekday Hourly Fractions for Unrestricted Road Types***

| Hour | H10 | H25 | H40 | H50 | H60 | Total |
|---|---|---|---|---|---|---|
| 1 | 0.00536 | 0.00794 | 0.00434 | 0.00529 | 0.01420 | 0.00791 |
| 2 | 0.00371 | 0.00543 | 0.00249 | 0.00395 | 0.01364 | 0.00552 |
| 3 | 0.00416 | 0.00527 | 0.00357 | 0.00407 | 0.01379 | 0.00539 |
| 4 | 0.00426 | 0.00685 | 0.00344 | 0.00528 | 0.01637 | 0.00696 |
| 5 | 0.00865 | 0.01299 | 0.00744 | 0.00917 | 0.02186 | 0.01294 |
| 6 | 0.01924 | 0.02808 | 0.01596 | 0.02223 | 0.03012 | 0.02769 |
| 7 | 0.03800 | 0.04830 | 0.06490 | 0.04586 | 0.04488 | 0.04809 |
| 8 | 0.06079 | 0.06905 | 0.09539 | 0.06604 | 0.06031 | 0.06873 |
| 9 | 0.05785 | 0.06046 | 0.09259 | 0.07022 | 0.06781 | 0.06133 |
| 10 | 0.04103 | 0.04541 | 0.06258 | 0.06268 | 0.06417 | 0.04691 |
| 11 | 0.04297 | 0.04380 | 0.05978 | 0.06083 | 0.06390 | 0.04533 |
| 12 | 0.04714 | 0.04747 | 0.06159 | 0.06332 | 0.06677 | 0.04891 |
| 13 | 0.05924 | 0.05097 | 0.05531 | 0.06543 | 0.06308 | 0.05216 |
| 14 | 0.06083 | 0.05242 | 0.06116 | 0.06275 | 0.06378 | 0.05338 |
| 15 | 0.07287 | 0.06154 | 0.08679 | 0.06809 | 0.06259 | 0.06213 |
| 16 | 0.08846 | 0.07415 | 0.09969 | 0.07556 | 0.06072 | 0.07411 |
| 17 | 0.10167 | 0.08174 | 0.08279 | 0.07774 | 0.05772 | 0.08105 |
| 18 | 0.09847 | 0.08327 | 0.04963 | 0.07190 | 0.05491 | 0.08187 |
| 19 | 0.07032 | 0.06446 | 0.03165 | 0.05387 | 0.04189 | 0.06319 |
| 20 | 0.04197 | 0.04739 | 0.01901 | 0.03639 | 0.03149 | 0.04621 |
| 21 | 0.03187 | 0.03906 | 0.01488 | 0.02833 | 0.02705 | 0.03800 |
| 22 | 0.01966 | 0.02956 | 0.01118 | 0.01918 | 0.02313 | 0.02866 |
| 23 | 0.01337 | 0.02062 | 0.00735 | 0.01304 | 0.01861 | 0.02003 |
| 24 | 0.00810 | 0.01378 | 0.00649 | 0.00879 | 0.01722 | 0.01351 |

However, for weekends, the count data was not robust enough to develop separate factors by road type or by vehicle type so only a single set of hourly VMT factors (shown in Table 9 below) was developed.

***Table 9: Weekend Hourly Fractions for Restricted/Unrestricted Road Types***

| HOUR | H10 | H25 | H40 | H50 | H60 | Total |
|---|---|---|---|---|---|---|
| 1 | 0.01635 | 0.01781 | 0.03310 | 0.01946 | 0.03316 | 0.01839 |
| 2 | 0.01066 | 0.01119 | 0.02323 | 0.01586 | 0.02873 | 0.01187 |
| 3 | 0.00790 | 0.00841 | 0.01984 | 0.01526 | 0.02595 | 0.00911 |
| 4 | 0.00579 | 0.00642 | 0.01708 | 0.01556 | 0.02498 | 0.00718 |
| 5 | 0.00749 | 0.00823 | 0.01755 | 0.01712 | 0.02806 | 0.00902 |
| 6 | 0.01279 | 0.01332 | 0.02291 | 0.02249 | 0.03179 | 0.01407 |
| 7 | 0.01867 | 0.02010 | 0.03379 | 0.03690 | 0.03798 | 0.02089 |
| 8 | 0.02291 | 0.02624 | 0.05137 | 0.05046 | 0.04349 | 0.02708 |
| 9 | 0.03282 | 0.03478 | 0.05412 | 0.06060 | 0.04905 | 0.03552 |
| 10 | 0.04456 | 0.04581 | 0.05471 | 0.06376 | 0.05285 | 0.04622 |
| 11 | 0.05503 | 0.05565 | 0.05689 | 0.06525 | 0.05602 | 0.05574 |
| 12 | 0.06466 | 0.06392 | 0.05137 | 0.06709 | 0.05710 | 0.06369 |
| 13 | 0.07084 | 0.06986 | 0.05404 | 0.06761 | 0.05578 | 0.06932 |
| 14 | 0.07520 | 0.07230 | 0.04839 | 0.06710 | 0.05434 | 0.07159 |
| 15 | 0.07703 | 0.07398 | 0.04786 | 0.06348 | 0.05153 | 0.07307 |
| 16 | 0.08072 | 0.07576 | 0.05201 | 0.06053 | 0.04996 | 0.07469 |
| 17 | 0.07736 | 0.07454 | 0.05285 | 0.05702 | 0.04782 | 0.07342 |
| 18 | 0.07136 | 0.07088 | 0.05550 | 0.05255 | 0.04620 | 0.06982 |
| 19 | 0.06338 | 0.06289 | 0.05654 | 0.04594 | 0.04549 | 0.06211 |
| 20 | 0.05482 | 0.05373 | 0.04961 | 0.03817 | 0.04285 | 0.05321 |
| 21 | 0.04560 | 0.04517 | 0.03900 | 0.03143 | 0.03990 | 0.04486 |
| 22 | 0.03578 | 0.03735 | 0.04079 | 0.02575 | 0.03628 | 0.03722 |
| 23 | 0.02814 | 0.02989 | 0.03471 | 0.02164 | 0.03196 | 0.02990 |
| 24 | 0.02016 | 0.02177 | 0.03273 | 0.01898 | 0.02874 | 0.02201 |

### 6) Road Type Distribution

Several steps were involved to produce the VMT road type distribution factors for each HPMS vehicle class. First, the 2015 HPMS VMT numbers were grouped into four MOVES road types (Urban Restricted, Urban Unrestricted, Rural Restricted and Rural Unrestricted). Then, the VMT value for each of the four MOVES road types was divided among five HPMS vehicle types based on the vehicle type distribution factors developed in Table 5. The final VMT road type distribution factors were developed by dividing the calculated VMT for each MOVES road type and each HPMS vehicle type with the total VMT of each HPMS vehicle class.

***Table 10: Road Type Distribution Used in MOVES for Ozone and $PM_{2.5}$ Analysis***

| HPMS Vehicle Type | Road Type Distribution for SEMCOG Region | | | |
|---|---|---|---|---|
| | Rural Restricted | Rural Unrestricted | Urban Restricted | Urban Unrestricted |
| H10 - Motorcycle | 0.01934 | 0.05799 | 0.19721 | 0.72546 |
| H25 - Passenger Car or Other 4-tire, 2-axle vehicles | 0.03277 | 0.04686 | 0.33416 | 0.58621 |
| H40 - Bus | 0.01622 | 0.06058 | 0.16539 | 0.75782 |
| H50 - Single-Unit Truck | 0.01472 | 0.06182 | 0.15009 | 0.77337 |
| H60 - Combination Truck | 0.06011 | 0.02420 | 0.61294 | 0.30275 |

### 7) Average Speed Distributions

MOVES uses the distribution of vehicle hours of travel (VHT) by average speed to determine an appropriate operating mode distribution. To develop the local average speed distribution for Southeast Michigan, SEMCOG used congested speed and VHT output from the TDFM to compute the VHT fraction in each MOVES speed bin. MOVES requires the user to input hourly speed distributions by road type and vehicle class. While SEMCOG's travel model does not provide hourly speed data, it calculates speeds by five different time periods:

- AM peak, simulating the hours of 6:30 - 9:00 a.m.;
- Mid-day, simulating the hours of 9:00 a.m. - 2:30 p.m.;
- PM peak, simulating the hours of 2:30 - 6:30 p.m.;
- Evening, simulating the hours of 6:30 p.m. - 10:00 p.m.
- Night, simulating the hours of 10 p.m. – 6:30 a.m.

For MOVES, separate speed distributions were developed for each of these time periods and applied to all hours within that period. This was done as follows:

- For each time period, the directional congested speed of each roadway link was assigned to one of MOVES 16 speed bins;
- The associated directional VHTs on the links were then aggregated by speed bin and MOVES road type;
- Then, for each road type, the VHT fraction in each speed bin was computed.

For each analysis year, the average speed distributions were developed. As no local data is currently available on speed differentiation between vehicle classes, the same distributions were applied to all vehicle types.

### 8) Vehicle Population

Year 2015 vehicle registration data from the Michigan Department of State (DOS) was used to develop the base year vehicle population inputs for MOVES. In addition, 2015 school bus fleet records from the Michigan Department of Education (MDOE) and 2017

public transit bus records from the Michigan Department of Transportation (MDOT) were used to supplement the base year vehicle population.

The body style and plate type fields in the DOS database were used to determine the MOVES source type of each vehicle. Table 11 shows how each DOS body style and plate type was mapped to the MOVES source types. Where DOS data did not provide sufficient detail, it was supplemented with information from MOVES default distributions for Southeast Michigan counties.

Future year vehicle population data was based on future growth of regional population, households and jobs of that year from SEMCOG's 2045 regional development forecasts (RDF). The rate of growth between 2015 and each future analysis year was calculated. Table 12 shows the growth factors of regional vehicle population. This rate was then uniformly applied to all 2015 vehicle population source types to generate the future year population.

***Table 11: Mapping between MOVES Vehicle Types and Michigan DOS Body Styles***

| MOVES Vehicle Type | Michigan DOS Body Style |
|---|---|
| M11 – Motorcycle | Motorcycle |
| M21 – Passenger Car | 2-door, 4-door, Convertible |
| M31 – Passenger Truck | Station Wagon, Non-Commercial Pick-up/Van |
| M32 – Light Commercial Truck | Ambulance, Hearse, Panel, Commercial Pick-up/Van |
| M41 – Other Bus | Bus<br>(Apportioned this data between MOVES M41 and M43 vehicle types the Fee Code of "B03"; data for M42-transit buses and M43-school buses were added using fleet information from MDOE and MDOT) |
| M42 – Transit Bus | |
| M43 – School Bus | |
| M51 – Refuse Truck | Dump Truck, Mixer, utility, Wrecker, Stake, Tank<br>(Apportioned this data MOVES M51, M52 and M53 vehicle types using split factors from MOVES2014 default run.) |
| M52 – Single-unit Short-haul Truck | |
| M53 – Single–unit Long-haul Truck | |
| M54 – Motor Home | Motor Home |
| M61 – Combination Short-haul Truck | Tractor<br>(Apportioned this data between MOVES M61 and M62 vehicle types using split factors from MOVES2014 default run) |
| M62 – Combination Long-haul Truck | |

***Table 12 Regional Vehicle Population Growth Factors***

| Growth Index from year 2015 | | Regional Growth Index Based on SEMCOG's 2045RDF | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Forecasted Item | % of | 2015 | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 |
| Population | 30% | 1.00000 | 1.00967 | 1.02125 | 1.03764 | 1.05555 | 1.07054 | 1.08092 |
| Households | 30% | 1.00000 | 1.02308 | 1.04826 | 1.07427 | 1.09583 | 1.11000 | 1.11663 |
| Jobs | 40% | 1.00000 | 1.03300 | 1.03190 | 1.02678 | 1.04265 | 1.05781 | 1.06696 |
| Vehicle Population | 100% | 1.00000 | 1.02302 | 1.03361 | 1.04428 | 1.06247 | 1.07728 | 1.08605 |

Detailed documentation on the development of SEMCOG's vehicle population data is contained in a separate SEMCOG mobile emissions model development memo.

### 9) Vehicle Age Distribution

Year 2015 DOS vehicle registration was also used to develop the vehicle/source type age distribution used in MOVES. The DOS body style field was used to assign each vehicle to one of six HPMS vehicle types (see Table 13 below). Once HPMS vehicle types had been assigned, the data was aggregated by model year and assigned to the appropriate age category. Model years 2015 and 2016 were considered age 0, 2014 was considered age 1 and so on. Model years 1985 and older were grouped into the age 30+ category. The age distribution for each HPMS vehicle type was then computed.

***Table 13: Mapping between HPMS Vehicle Types and Michigan DOS Body Styles***

| HPMS Vehicle Type | Michigan DOS Body Style |
|---|---|
| H10 – Motorcycle | Motorcycle |
| H20 – Passenger Car | 2-door; 4-door; Convertible |
| H30 – Other 4-tire, 2-axle vehicles | Station Wagon; Pick-up/Van; Ambulance; Hearse; Panel; |
| H40 – Bus | Bus |
| H50 – Single-unit Short Truck | Dump Truck; Mixer; Utility; Wrecker; Stake; Tank, Motor Home |
| H60 – Combination Truck | Tractor |

By using base year 2015 data, future year age distribution was projected by applying EPA's age projection tool of "*age-distribution-projection-tool-moves2014*.xls".

## C. Other Local Data Inputs

### 1) Temperature and Humidity Data

Temperature and humidity data are required inputs for MOVES. Local temperature profiles were developed for each month of the year. To generate these profiles, the average minimum and maximum daily temperatures for each month in Southeast Michigan were calculated using 2014-2016 National Weather Service (NWS) local climatological data reports for Detroit/Pontiac area. The relative humidity data was developed using the 2014-2016 National Centers for Environmental Information (NCDC) for the Detroit metropolitan airport posted by National Oceanic and Atmospheric Administration (NOAA).

EPA's "*MeteorologicalDataConverter_Mobile6.xls*" tool was then used to convert these numbers to the required hourly temperature and relative humidity inputs for MOVES. Table 14 shows the average min/max temperatures that were used to develop each month's hourly profile and Table 15 shows the necessary input format used in the tool to develop the relative humidity.

***Table 14: Monthly Average Min/Max Temperatures for $PM_{2.5}$ and CO Runs***

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 14.7 | 13.5 | 26.4 | 37.8 | 52.1 | 60.2 | 63.2 | 64.1 | 57.5 | 45.4 | 34.2 | 28.8 |
| Max | 29.1 | 29.7 | 44.5 | 59.0 | 72.6 | 80.1 | 83.2 | 82.6 | 76.5 | 62.9 | 51.4 | 40.4 |

***Table 15: Hourly Relative Humidity by each Month***

| Month | HOUR ID | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hour 1 (6:00 AM) | Hour 2 (7:00 AM) | Hour 3 (8:00 AM) | Hour 4 (9:00 AM) | Hour 5 (10:00 AM) | Hour 6 (11:00 AM) | Hour 7 (12:00 Noon) | Hour 8 (1:00 PM) | Hour 9 (2:00 PM) | Hour 10 (3:00 PM) | Hour 11 (4:00 PM) | Hour 12 (5:00 PM) |
| | Hour 13 (6:00 PM) | Hour 14 (7:00 PM) | Hour 15 (8:00 PM) | Hour 16 (9:00 PM) | Hour 17 (10:00 PM) | Hour 18 (11:00 PM) | Hour 19 (12:00 AM) | Hour 20 (1:00 AM) | Hour 21 (2:00 AM) | Hour 22 (3:00 AM) | Hour 23 (4:00 AM) | Hour 24 (5:00 AM) |
| ENTER MOBILE6 HOURLY RELATIVE HUMIDITY | | | | | | | | | | | | |
| 1 | 78.8 | 79.0 | 78.3 | 78.1 | 74.0 | 76.8 | 79.3 | 77.8 | 79.0 | 78.8 | 78.0 | 79.2 |
| | 73.4 | 73.4 | 77.5 | 77.3 | 76.7 | 73.0 | 69.1 | 67.3 | 67.9 | 70.0 | 69.6 | 72.6 |
| 2 | 79.1 | 77.3 | 77.3 | 74.7 | 70.7 | 73.7 | 76.4 | 76.6 | 78.1 | 78.7 | 77.8 | 78.8 |
| | 68.8 | 67.9 | 71.4 | 73.4 | 72.5 | 66.7 | 66.5 | 63.7 | 64.5 | 61.5 | 60.8 | 67.3 |
| 3 | 77.5 | 75.3 | 73.6 | 69.7 | 64.3 | 72.8 | 74.5 | 73.7 | 75.8 | 77.0 | 76.3 | 77.6 |
| | 62.3 | 63.2 | 66.9 | 71.3 | 69.7 | 63.1 | 60.5 | 56.6 | 57.5 | 58.1 | 55.3 | 61.1 |
| 4 | 74.4 | 69.6 | 62.7 | 60.4 | 55.7 | 69.5 | 71.2 | 70.5 | 74.9 | 76.1 | 73.0 | 75.6 |
| | 57.8 | 57.8 | 64.9 | 67.8 | 66.3 | 55.6 | 51.1 | 48.9 | 51.1 | 54.6 | 50.0 | 55.1 |
| 5 | 76.4 | 72.8 | 66.9 | 61.6 | 59.3 | 71.1 | 74.5 | 74.1 | 77.7 | 77.8 | 77.2 | 79.4 |
| | 56.4 | 57.9 | 63.9 | 66.2 | 66.4 | 57.0 | 54.6 | 52.2 | 53.9 | 58.4 | 53.4 | 55.8 |
| 6 | 78.5 | 73.7 | 67.7 | 62.9 | 59.7 | 73.2 | 76.9 | 76.6 | 79.4 | 80.6 | 81.2 | 81.1 |
| | 59.8 | 60.6 | 67.1 | 69.5 | 69.2 | 59.5 | 54.9 | 53.4 | 55.2 | 55.0 | 52.7 | 55.8 |
| 7 | 74.4 | 68.8 | 53.8 | 47.2 | 45.1 | 67.6 | 73.9 | 75.3 | 78.0 | 79.6 | 80.1 | 80.6 |
| | 45.3 | 49.4 | 60.5 | 64.1 | 65.1 | 40.5 | 38.0 | 37.8 | 37.0 | 38.1 | 38.5 | 40.3 |
| 8 | 85.9 | 82.1 | 74.1 | 69.2 | 65.3 | 79.3 | 83.1 | 83.5 | 86.6 | 86.9 | 86.8 | 88.4 |
| | 66.3 | 65.4 | 71.0 | 74.6 | 76.4 | 62.6 | 58.0 | 56.8 | 60.6 | 61.8 | 58.3 | 65.5 |
| 9 | 88.5 | 85.2 | 78.2 | 72.9 | 69.1 | 83.5 | 85.8 | 86.3 | 87.9 | 88.3 | 88.1 | 88.7 |
| | 69.8 | 69.7 | 75.5 | 78.5 | 80.0 | 63.6 | 62.3 | 60.2 | 59.0 | 58.3 | 58.6 | 62.0 |
| 10 | 85.9 | 85.0 | 80.4 | 74.5 | 69.9 | 79.7 | 83.1 | 82.8 | 84.3 | 85.0 | 84.5 | 85.3 |
| | 69.3 | 69.7 | 73.9 | 77.0 | 77.8 | 67.6 | 62.4 | 60.5 | 60.4 | 60.4 | 59.9 | 64.8 |
| 11 | 81.8 | 81.3 | 78.9 | 75.9 | 71.6 | 76.3 | 80.7 | 78.9 | 80.7 | 80.5 | 79.8 | 81.7 |
| | 71.4 | 71.1 | 75.2 | 76.0 | 75.1 | 68.1 | 63.4 | 61.1 | 62.8 | 65.2 | 63.1 | 69.2 |
| 12 | 83.1 | 82.4 | 82.7 | 81.3 | 77.3 | 80.6 | 83.5 | 82.2 | 83.1 | 84.1 | 83.3 | 83.8 |
| | 77.0 | 76.8 | 79.5 | 79.7 | 79.2 | 75.4 | 73.1 | 71.2 | 73.4 | 73.4 | 72.4 | 76.2 |

Since PM 2.5 emissions are highest during winter months, only data from December, January and February are used in the conformity analysis for this pollutant.

For ozone analysis, different temperature inputs are used. The objective is to simulate the on-road emissions that are likely to occur on days when meteorological conditions are conducive to high ozone formation (i.e., hot summer days). Thus, the maximum summer temperature used in MOVES was calculated by averaging the maximum local temperatures on the 10 highest ozone days in the year of 2014 to 2016. Similarly, the minimum summer temperature was calculated by averaging the minimum local temperatures on the same 10 highest ozone days. This yielded a maximum temperature

of 86.9 degrees and a minimum of 60.0 degrees. These numbers were entered into the month of July to simulate a typical summer day for ozone conformity analysis.

**2) Fuel Supply/Fuel Formulation**

The default fuel tables from MOVES3 for the county of Wayne were used for the seven counties (Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne counties) in Southeast Michigan. Special attention was given to the Raid Vapor Pressure (RVP) of summer fuel since the legal limit of summer RVP is 7.0 in Southeast Michigan region. SEMCOG confirmed with the EPA that the RVP of 8.0 for E10 fuel was attributable to the one psi waiver for ethanol in the default database for the region. Thus, it was decided to use the default values in MOVES' runs for SEMCOG's regional conformity analysis.

# Appendix A:

# Projects Included in Conformity Analysis

# Projects Included in 2045 RTP and FY 23-26 TIP (2023 Summer Amendment) Conformity Analysis

| FISCAL YEAR / PERIOD | PROJECT ID | COUNTY | JURISDICTION | PROJECT NAME | PROJECT LIMITS | PROPOSED WORK | Length | AQ Exempt | FIRST MODEL YEAR |
|---|---|---|---|---|---|---|---|---|---|
| 2016 | 2011372 | Oakland | MDOT - Metro | I-75 | from North of Coolidge road to South BoulevArd | Reconstruct and add one lane in each direction | | Non-Exempt | 2020-2025 |
| 2016.2018 | 12940 | Wayne | MDOT - Regional | Gordie Howe International Bridge | Detroit to Windsor | Bridge access road infrastructure improvements | | Non-Exempt | 2025 |
| 2018 | 13059 | Wayne | MDOT - Regional | I-75 | N of 13 Mile Rd to Coolidge Hwy, Oakland County | Reconstruct and widen | | Non-Exempt | 2025 |
| 2018 | 13060 | Wayne | MDOT - Regional | I-75 | 8 Mile Rd to N of 13 Mile Rd, Oakland County | Reconstruct and widen; drain tunnel construction | | Non-Exempt | 2025 |
| 2020 | 132613 | Livingston | MDOT | M-59 (Highland Rd) | Cullen Rd to 950 ft E of Hartland Woods Dr | Construct center-left turn lane | 0.7 | Exempt | 2025 |
| 2020 | 205872 | Livingston | Livingston County | Whitmore Lake Rd | Whitmore Lake Road from Leo Drive to Spencer Road East | Road widening from 2 lanes up to 5 lanes | 1.957 | Non-exempt | 2025 |
| 2020 | 207599 | Macomb | Eastpointe | E 8 Mile Rd | Old 8 Mile Road from Vernier Road to Beaconsfield Road | Reconstruct road with reduction of lanes from 4 to 3 | 0.324 | Non-exempt | 2025 |
| 2020 | 207178 | Macomb | RCMC | Mound Rd | I-696 to M-59 | Reconstruct; add one lane each direction from 17 Mile Rd to M-59; add ITS, safety and ped/bike features. | 9.4 | Non-exempt | 2025 |
| 2020 | 203539 | Oakland | RCOC | Currie Rd | Eight Mile Rd to Ten Mile Rd | Pave gravel roadway | 2.0 | Exempt | 2025 |
| 2020 | 132536 | Oakland | RCOC | Dequindre Rd | Utica Rd to N of Auburn Rd | Widen to 5 Lanes | 0.831 | Non-Exempt | 2025 |
| 2020 | 124103 | Oakland | MDOT | I-96 | from I-275 to County Line | Installation of Active Traffic Management System | 11.392 | Non-exempt | 2025 |
| 2020 | 132522 | Oakland | RCOC | Orchard Lake Rd | 13 Mile Rd to 14 Mile Rd | Widen from five lanes to four-lane boulevard | 1.1 | Non-exempt | 2025 |
| 2020 | 113542 | Washtenaw | MDOT | M-17 | Normal Rd to Michigan Ave, I-94 to Michigan Ave, Hamilton Rd to Ecorse Rd (Ecorse Rd is wrong in the description. It is actually Cross st. as said in the IAWG meeting | Mill & resurface; Concrete patches. Road diet w/ buffered bike lanes | 1.736 | Non-exempt | 2025 |
| 2021 | 212853 | Macomb | MCDR | 23 Mile Rd | 900 ft W of Card Rd to 900 ft W of Heydenreich Rd | Reconstruct and widen from two to five lanes | 1.0 | Non-exempt | 2025 |
| 2021 | 132484 | Macomb | MDCR | 23 Mile Rd | Nine hundred (900) ft W of Heydenreich Rd 600 ft E of Romeo Plank Rd | Reconstruct roadway and widen from two to five lanes | 1.1 | Non-exempt | 2025 |
| 2021 | 129661 | Monroe | MDOT | I-75 | Under LaPlaisance Rd | Bridge Replacement with interchange reconstruction | 1.325 | Exempt | 2025 |
| 2021 | 202465 | St. Clair | Marysville | Huron Blvd | Huron from Gratiot to Connecticut | Road Reconstruction and 4-to-3 lane road diet | 0.267 | Non-exempt | 2025 |
| 2022 | 210068 | Livingston | MDOT | US-23 | M-36 to one mile North of Spencer Rd | Milling and two-course overlay, flex route, bridge replacement & widening | 8.0 | Non-Exempt | 2025 |
| 2022 | 209478 | Oakland | RCOC | Waldon Rd | Waldon Rd, Clintonville Rd to Baldwin Rd | Pave Gravel Road | 2.2 | Exempt | 2025 |
| 2022 | 211928 | Wayne | Dearborn | Vernor Ave, Chase Rd | Dix Hwy to east city limits (Vernor); Gould St to Diversey St (Chase) (No road diet on Chase) | Rapid rectangular flashing beacon, crosswalks, road diet | 0.254 | Non-exempt | 2025 |
| 2023 | 123138 | Regional | MDOT | M-153 | W. of Sheldon Road to W. of Lotz Road | Reconstruct to boulevard, no added lanes | 2.4 | Non-Exempt | 2025 |
| 2023 | 200202 | Washtenaw | MDOT | US-12 | US-12 from west of Platt Rd to west of US-23 interchange | Operational improvements; add one lane in each direction. | 0.948 | Non-Exempt | 2025 |
| 2023 | 210587 | Livingston | Livingston County | N Old US 23 Hwy | Old US-23 | Road Rehabilitation, Left Turn Lane Widening | 2.101 | Non-Exempt | 2025 |
| 2024 | 214338 | Livingston | Livingston County | Challis Rd | Challis Rd/Bauer Rd roundabout and road relocation | Construct roundabout at Bauer Rd and Challis Rd and relocate Challis Rd | 0.575 | Non-Exempt | 2025 |

# Projects Included in 2045 RTP and FY 23-26 TIP (2023 Summer Amendment) Conformity Analysis

| FISCAL YEAR / PERIOD | PROJECT ID | COUNTY | JURISDICTION | PROJECT NAME | PROJECT LIMITS | PROPOSED WORK | Length | AQ Exempt | FIRST MODEL YEAR |
|---|---|---|---|---|---|---|---|---|---|
| 2024 | 211921 | Macomb | MCDR | Romeo Plank Rd | Approximately 725 ft south of Iroquois Middle School drive to 23 Mile Road | Reconstruction from 2 to 5 lanes with replacement of bridges and culverts | 1.2 | Non-exempt | 2025 |
| 2024 | 209389 | Oakland | MDOT | M-59 | from US-24 to Loop | Pedestrian Refuge and lane reduction; one WB motor vehicle lane reduced; three pedestrian refuge crossings and buffered bike lanes added | 1.483 | Non-Exempt | 2025 |
| 2024 | 132535 | Oakland | Troy C. | Rochester Rd | Barclay Dr to Trinway Dr | Widen from five lanes to six-lane boulevard | 1.1 | Non-exempt | 2025 |
| 2024 | 218045 | Oakland | Pontiac | Baldwin Ave | Multiple Routes, Various Locations, City of Pontiac | Road Diet (4-3 Lane Conversion), Signal modernization | 1.0 | Exempt | 2025 |
| 2024 | 210599 | Oakland | MDOT | I-75BL (Woodward Ave Loop) | I-75 BL (Woodward Ave Loop), M-59, and US-24 BR (N Cass Ave) | Only minor widening at intersections and converting one-way street to two-way street | 2.7 | Non-Exempt | 2025 |
| 2024 | 21846 | Wayne | Detroit | Rosa Parks Blvd | Fort St to W Jefferson, W. Jefferson from Rosa Parks to 8th St | Two-way Bike Track, Bus Stop, ADA Upgrades | 0.5 | Exempt | 2025 |
| 2024 | 210987 | Wayne | MDOT | I-94 W | Lemay St over I-94 | New Structure (A new bridge for motor vehicle traffic will be built on existing demolished route as part of I-94 moderization project) | 0.0 | Exempt | 2030 |
| 2024 -2034 | 45RTP-142 | Wayne | MDOT | I-94 | I-96 to Conner Ave (between Cass and Chene) | Trunkline modernization | 6.6 | Non-exempt | 2025-2030 |
| 2025 | 130035 | Wayne | MDOT | I-375 | S. of I-75/I-375 interchange to Jefferson Ave. | Reconstructing and realigning I-375 as a new at-grade boulevard | 3.4 | Non-Exempt | 2030 |
| 2025 | 210324 | Wayne | MDOT | US-12 | US-12 between I-96 and Cass | No major widening: coverting two-general purpose vehicle lanes to 1 general pupose vehilce lane and another for Transit/CAV lane | 1.6 | Non-Exempt | 2030 |
| 2025-2034 | 45RTP-165 | Oakland | Novi C. | Beck Rd | Eight Mile Rd to Ten Mile Rd | Widen from two to five lanes | 2.0 | Non-exempt | 2030 |
| 2025-2034 | 45RTP-168 | Oakland | RCOC | Pontiac Trail | Decker Rd to Welch Rd | Widen from two to five lanes | 0.5 | Non-exempt | 2030 |
| 2025-2034 | 45RTP-177 | Wayne | WDPS | Canton Center Rd [AC, ACC] | Geddes Rd to Palmer Rd | Add center-left turn lane; HMA resurfacing | 1.1 | Non-exempt | 2030 |
| 2025-2034 | 45RTP-133 | Macomb | Various | 26 Mile Rd | Eight hundred (800) ft E of M-53 (Christopher Columbus Fwy) to 1000 ft E of Schoenherr Rd | Reconstruct roadway and widen from two to five lanes | 1.4 | Non-exempt | 2035 |
| 2025-2034 | 45RTP-134 | Macomb | MCDR | Hayes Rd | 23 Mile Rd to 1000 ft N of 24 Mile Rd | Reconstruct roadway and widen from two to five lanes | 1.1 | Non-exempt | 2035 |
| 2025-2034 | 45RTP-135 | Macomb | MCDR | Hayes Rd | One thousand (1000) ft N of 24 Mile Rd to 1000 ft N of 25 Mile Rd | Reconstruct roadway and widen from two to five lanes | 1.1 | Non-exempt | 2035 |
| 2025-2034 | 45RTP-136 | Macomb | MCDR | Hayes Rd | One thousand (1000) ft N of 25 Mile Rd to 1000 ft N of 26 Mile Rd | Reconstruct roadway and widen from two to five lanes | 1.1 | Non-exempt | 2035 |
| 2025-2034 | 45RTP-137 | Macomb | MCDR | North Ave | One thousand (1000) ft N of 22 Mile Rd to 1000 ft N of 23 Mile Rd | Reconstruct roadway and widen from two to five lanes | 1.1 | Non-exempt | 2035 |
| 2025-2034 | 45RTP-164 | Oakland | Wixom C. | Beck Rd | West Rd to Pontiac Trail | Widen from three to five lanes | 1.0 | Non-exempt | 2035 |
| 2025-2034 | 45RTP-169 | Oakland | RCOC | Southfield Rd | Mt Vernon St to Beverly Rd | Widen from five lanes to four-lane boulevard | 4.0 | Non-exempt | 2035 |
| 2026 | 219056 | Macomb | MCDR | Schoenherr Rd | Schoenherr from 23 Mile Rd to N of 25 Mile Rd | Major widening to add a 2 mile long center left turn lane | 2.2 | Non-Exempt | 2030 |
| 2026 | 218448 | Oakland | RCOC | Pontiac Lake Rd | Pontiac Lake Rd, Margie Dr to Kingston St | Pave Gravel, no widening | 0.8 | Exempt | 2030 |
| 2027 | 45RTP-98 | Macomb | MCDR | North Ave | 21 Mile Rd to 1000 ft N of 22 Mile Rd | Reconstruct roadway and widen from two to five lanes | 1.1 | Non-exempt | 2030 |
| 2027 | 45RTP-108 | Oakland | Various | Beck Rd | 12 Mile Rd to West Rd | Widen from three to five lanes | 1.0 | Non-exempt | 2030 |

# Projects Included in 2045 RTP and FY 23-26 TIP (2023 Summer Amendment) Conformity Analysis

| FISCAL YEAR / PERIOD | PROJECT ID | COUNTY | JURISDICTION | PROJECT NAME | PROJECT LIMITS | PROPOSED WORK | Length | AQ Exempt | FIRST MODEL YEAR |
|---|---|---|---|---|---|---|---|---|---|
| 2030 | 60725 | Wayne | Wayne DPS | Beck Rd | Six Mile Rd to Base Line Rd (Eight Mile Rd) | Road reconstruction, add center turn lane | 1.922 | Non-exempt | 2035 |
| 2035-2045 | 45RTP-197 | Oakland | RCOC | 12 Mile Rd | E of Beck Rd to W of Dixon Rd | Widen from two to four lane boulevard | 1.5 | Non-exempt | 2040 |
| 2035-2045 | 45RTP-199 | Oakland | Novi C. | Meadowbrook Rd | Ten Mile Rd to 12 Mile Rd | Widen from three to five lanes | 2.0 | Non-exempt | 2040 |
| 2035-2045 | 45RTP-142 | Wayne | MDOT | I-94 | I-96 to Conner Ave (between I96 and Cass) | Trunkline modernization | 6.6 | Non-exempt | 2040 |
| 2035-2045 | 45RTP-198 | Oakland | Novi C. | Beck Rd | Ten Mile Rd to Grand River Ave | Widen from two to five lanes | 1.5 | Non-exempt | 2045 |
| 2035-2045 | 45RTP-200 | Oakland | RCOC | Ten Mile Rd | South Lyon E CL to Haggerty Rd | Widen from two to five lanes | 10.0 | Non-exempt | 2045 |

# Appendix B:

# Summary of the MITC-IAWG Conference Call

# SEMCOG MITC-IAWG Meeting - 2023 Summer Amendment

## Summary of June 1st, 2023 Call

**Participants:**

**EPA:** Michael Leslie **FHWA:** Andy Pickard, Christina Nicholaides **FTA:** Susan Weber
**MDOT**: Richard Bayus, Meredith Fryer, Lane Masoud, Katarina Parker, Donna Wittl
**EGLE:** Breanna Bukowski **WATS:** Ryan Buck, Nick Sapkiewicz
**SEMCOG:** Steve Brudzinski, Jilan Chen, Michele Fedorowicz, Saima Masud, Allison Racisz

On June 1st, 2023, the Michigan Transportation Conformity Interagency Workgroup (MITC-IAWG) conducted a Zoom call to review the proposed 2023 Summer amendment for SEMCOG's Fiscal Year (FY) 2023-FY 2026 Transportation Improvement Program (FY 23-26 TIP) and 2045 Regional Transportation Plan (2045 RTP), The purpose of the call was to determine if any of the projects being amended into the FY 23-26 TIP and/or 2045 RTP would trigger the need for a new transportation conformity analysis and, if so, which projects need to be included in that analysis.

First, SEMCOG staff welcomed the group and explained more detailed information regarding the US-12 project and an additional project in Washtenaw County were received after the amended project list was sent to the group. Both changes were highlighted in yellow in the attached project list of this summary.

During the call, the group discussed the amendment list in general and focused on the following projects in more detail. These projects were screened by SEMCOG staff initially and identified as "Not Exempt" or "need the group discussion" to make the determination.

- JN 210599 – I-75BL project converting one-way street to two-way street for 2.6 mile of the project limits: Woodward Ave Loop, and between M-59 and US-24. The group discussed and agreed this project is "Not Exempt" from transportation conformity and needs to be included in regional emission analysis.
- JN 210324 – US-12 project between I-96 overpass and Cass Avenue converting two general purpose vehicle lanes to one general vehicle lane and another for dedicated Transit/CAV lane. The group discussed and agreed this project is "Not Exempt" from transportation conformity and needs to be included in regional emission analysis. The group also agreed this transit/CAV lane will be configured as transit-only lane due to SEMCOG's current travel demand model has limitations on dealing with CAVs.
- JN 202543 and JN 218427 – both projects are part of I-94 modernization project, which have been modeled previously and there are no scope changes from this summer amendment. The group agreed these two projects are "Not Exempt" from transportation conformity analysis, but no changes need to be made to SEMCOG's regional model.
- JN 218427 – Schoenherr Rd project adding the center left turn lane from 23 Mile Rd. to 25 Mile Rd. The group agreed this project is "Not Exempt" from transportation conformity and will be included in regional model if a new emission analysis is needed.

The group discussed the potential improvements of JobNet in reporting out more details of the project changes and reflecting better of the project amendment type. Due to multiple changes made on the region's major arterials, the group determined **a new conformity analysis is needed for SEMCOG's 2023 Summer amendment.** All model network changes from these "Not Exempt" projects will be coded to SEMCOG's regional travel model and included in SEMCOG's regional emission analysis. The roadway changes from these "Exempt" projects will be included in SEMCOG's regional model network, wherever possible.

In addition, SEMCOG staff indicated that new ozone (VOC and NOx) budgets submitted with the 2015 ozone maintenance plan have been approved by EPA on May 19, 2023. Therefore, these new budgets, listed in the table below, will be applied to SEMCOG's ozone conformity analysis from now on.

| **2015 Ozone Approved Budgets** | **Emissions (tons/day)** | |
|---|---|---|
| | VOC | $NO_x$ |
| 2025 Interim Year Budget | 47.86 | 104.35 |
| 2035 Maintenance Year Budget | 44.67 | 102.41 |

The meeting was adjourned at 2:25pm.

# SEMCOG 2023 Summer TIP/RTP Amendment List

| Job no. | Phase | Fiscal Year | County | Project Name | Limits | Length | Project Description | Air Quality | Notes |
|---|---|---|---|---|---|---|---|---|---|
| 210599 | CON | 2024 | Oakland | I-75BL (Woodward Ave Loop) | I-75 BL (Woodward Ave Loop), M-59, and US-24 BR (N Cass Ave) | 2.677 | Only minor widening at intersections, not widening the roadway. | Not Exempt | Converting one-way street (NFC-3) to two-way street for 2.6 miles. Could be modeled. |
| 210324 | CON | 2025 | Wayne | US-12 | US-12 between I-96 and Cass | 1.621 | Major widening, assume 2 lanes in each direction, work also includes bike lanes and transit lanes | Not Exempt | No widening: coverting two-general purpose vehicle lanes to 1 general pupose vehilce lane and another for Transit/CAV lane (DDOT and SMART buses, CAV, and potentially used by last mile delivery); the bike lanes will be at sidewalk level. |
| 202543 | CON | 2023 | Wayne | I-94 E | from east of X01 of 82025 to Barrett Avenue, City of Detroit | 1.019 | Major widening as part of the on-going I-94 Modernization | Not Exempt | I-94 MGP: already being modeled & no scope changed this time. |
| 218427 | CON | 2025 | Wayne | I-94 E | I-94 east of X01 82024 (Conrail RR) to west of Burns Street | 2.026 | Construction extends from Conrail RR to Burns Street. The entire I-94 Burns St to Barrett Ave Segment is being designed under Job number 202543. This project number encompasses "Segment 3, Package 1b". No scope change to the I-94 Modernization project. | Not Exempt | I-94 MGP: already being modeled & no scope changed this time. |
| 219056 | CON | 2026 | Macomb | Schoenherr Rd | Schoenherr from 23 Mile Rd to N of 25 Mile Rd | 2.161 | Major widening to add a 2 mile long center left turn lane | Not Exempt | Schoenherr Rd - minor arterial. |
| 218968 | CON | 2025 | Macomb | 21 Mile Rd | Structure 6206, 21 Mile Road over Gloed Drain | 0 | Bridge Replacement | Exempt | |
| 217652 | CON | 2023 | Macomb | 23 Mile Rd | 23 Mile Road from Gratiot Avenue east to Canadian National RR | 0.296 | Pavement Marking, Landscaping, Drainage Improvement, Curb and Gutter | Exempt | |
| 219052 | CON | 2025 | Macomb | E 14 Mile Rd | 14 Mile Rd from Kelly Rd to Gratiot Ave | 1.041 | Rehabilitation | Exempt | |
| 218987 | CON | 2024 | Macomb | E 9 Mile Rd | 9 Mile Road from Tuscany Street to I-94 | 0.991 | Rebuild 9 mile within existing roadway | Exempt | |
| 212309 | CON | 2023 | Livingston | E Cohoctah Road | E Cohoctah Road, Str #5824 over Cohoctah-Deerfield Drain, Livingston County | 0 | Bridge Replacement | Exempt | |
| 219011 | CON | 2024 | Wayne | Hamtramck Dr | Hamtramck Drive from Joe Campau Avenue to Dequindre Cut | 3.413 | New Non-Motorized Path | Exempt | |
| 210044 | CON | 2025 | Monroe | I-275 | from I-75 to Wayne/Monroe County Line | 7.283 | Milling and single course overlay | Exempt | |
| 204305 | CON | 2024 | Oakland | I-696 | Lahser Road to Dequindre Road | 9.896 | Concrete Inlay | Exempt | |
| 205628 | CON | 2026 | Monroe | I-75 | Ready Road over I-75 | 0.000 | Bridge Replacement | Exempt | |
| 208228 | CON | 2023 | Oakland | I-75BL (Square Lake Rd) | M-1 to I-75 Interchange Ramps | 1.534 | Reconstruction of I-75BL (Square Lake Rd), ramp reconstruction,one course overlay of the ramps to/from Square Lake Rd to EB I-75 BL, traffic signal modernization, drainage improvements and other misc. concrete pavement repairs. | Exempt | |
| 210089 | CON | 2025 | Macomb,Wayne | I-94 | 13 bridges along I-94 between 8 Mile Road and 11 Mile Road in Macomb Co | 0 | Substructure repair, Railing replacement, bearing realignment, mesh panels | Exempt | |
| 209886 | CON | 2026 | St. Clair,Macomb | I-94 | Adair Rest Area | 0.1 | Rest Area Facility Improvement | Exempt | |
| 208665 | PE | 2023 | Washtenaw | I-94 | Parker to M-14 | 5.194 | Milling and single course overlay | Exempt | |
| 218054 | CON | 2023 | Macomb | Kelly Rd | Kelly Road from 14 Mile Road north to 15 Mile Road | 1.014 | Concrete reconstruction within existing roadway | Exempt | |
| 210081 | CON | 2025 | Oakland | M-150 | M-59 to Avon Road | 2.781 | Milling and Two Course Asphalt Resurfacing | Exempt | |
| 208697 | CON | 2025 | St. Clair | M-29 | Church Road to Palms Road | 3.627 | Milling and two course asphalt resurfacing | Exempt | |
| 110678 | CON | 2025 | St. Clair | M-29 | County Line Road to Church Road | 1.878 | Milling and two course asphalt resurfacing | Exempt | |
| 201581 | CON | 2025 | Wayne | M-3 (Randolph) | M-3 (Randolph) at Larned, Congress, Lafayette, and Monroe. | 0 | Signal Modernization with Interconnect | Exempt | |
| 211179 | PE | 2023 | Macomb | M-3 NB | Church St to Canfield Dr | 1.478 | Reconstruction & Sewer Separation | Exempt | |
| 211179 | ROW | 2025 | Macomb | M-3 NB | Church St to Canfield Dr | 1.478 | construct a new storm sewer under NB Gratiot from Church St to Sandpiper through Mt. Clemens. There are no plans to add or reduce the number of lanes on Gratiot. The road would be reconstructed with the same footprint after the installation of the storm sewer. | Exempt | |
| 211179 | CON | 2026 | Macomb | M-3 NB | Church St to Canfield Dr | 1.478 | construct a new storm sewer under NB Gratiot from Church St to Sandpiper through Mt. Clemens. There are no plans to add or reduce the number of lanes on Gratiot. The road would be reconstructed with the same footprint after the installation of the storm sewer. | Exempt | |
| 204309 | CON | 2024 | Wayne | M-39 | McNichols Road to Plymouth Road | 2.951 | Concrete reconstruction of road and ramps within existing roadway | Exempt | |
| 208611 | CON | 2024 | Wayne | M-39 | Plymouth Road to Ford Road | 3.325 | Reconstructing road and ramps within existing roadway | Exempt | |
| 210078 | CON | 2023 | Macomb | M-53 | 18 Mile Road to 27 Mile Road | 10.043 | Milling and Two Course Asphalt Resurfacing | Exempt | |
| 210082 | CON | 2026 | Oakland | M-59 | Milford Road to Pontiac Lake Road | 9.171 | Milling and One Course Asphalt Overlay | Exempt | |

# SEMCOG 2023 Summer TIP/RTP Amendment List

| Job no. | Phase | Fiscal Year | County | Project Name | Limits | Length | Project Description | Air Quality | Notes |
|---|---|---|---|---|---|---|---|---|---|
| 218989 | CON | 2024 | Livingston | Maltby Rd | Non-Motorized Path, Murray Lake Rd on Baurer Rd to Maltby Rd at Fieldcrest | 3.68 | Non-Motorized Path Reconstruction | Exempt | |
| 218979 | CON | 2024 | Macomb | Metropolitan Pkwy | 16 Mile Road from Utica Road to Union Lake Road | 5.287 | 16 Mile Road (Freedom Trail) reconstruction within existing roadway | Exempt | |
| 209835 | CON | 2023 | Macomb | North River Road | North River Road over Catfish Channel Str# 6320 - Macomb County | 0 | Bridge Replacement | Exempt | |
| 219015 | CON | 2024 | Monroe | Oakville Waltz Rd | Oakville Waltz Road from Palmer Road to Rawsonville Road | 0.954 | Asphalt Road improvements within existing roadway | Exempt | |
| 110611 | CON | 2024 | Wayne | OLD-14 | Newburgh Road to Market Street | 0.393 | Ann Arbor Rd (Old M-14) and Plymouth from Newburgh to Market will be retaining the existing lane configuration (typical 4 lane with occasional turn lane). Minor lane widening to bring up to standard of 12' lanes from existing 11' lanes. The approaches of Newburgh Rd to Old M-14 will have widening to include a right turn lane. The length of widening on Newburgh Rd in each direction north and south of Old M-14 is approximately 350'. | Exempt | |
| 218969 | CON | 2024 | Oakland | Oxford Rd | Safety Path from North Oxford Road to Ray Road | 1.222 | Safety Path along west side of North Oxford Road from the end of the current path to Ray Road, and along the south side of Ray Road form North Oxford Road to M-24 | Exempt | |
| 218986 | PE | 2024 | Wayne | Pennsylvania Rd | Pennsylvania Road | 1.004 | Reconstruction | Exempt | |
| 218448 | CON | 2026 | Oakland | Pontiac Lake Rd | Pontiac Lake Rd, Margie Dr to Kingston St | 0.802 | Pave Gravel, no widening | Exempt | |
| 207373 | CON | 2023 | Jackson,Ingham,Lenawee,Livingston | Regionwide | All trunkline routes in University SEMCOG counties | 1.471 | Special pavement marking application on trunklines in University Region | Exempt | |
| 218524 | EPE | 2023 | Oakland | Regionwide | Metro Region | 0 | Technical Support | Exempt | |
| 207357 | CON | 2023 | Saginaw,Lapeer,Bay,Genesee,St. Clair | Regionwide | Trunkline routes in St Clair County | 3.554 | Special pavement marking application on trunklines in Bay Region | Exempt | |
| 218445 | CON | 2026 | Oakland | Rochester Rd | Rochester Rd, 13 Mile Rd to 14 Mile Rd | 1.016 | 3R Road Project | Exempt | |
| 209833 | CON | 2023 | Macomb | South River Road | South River Road over Channel to Lake St. Clair Str# 6202 - Macomb County | 0.000 | Bridge Replacement | Exempt | |
| 218823 | EPE | 2024 | Oakland | Southfield Rd | Metro Region | 0 | Technical Support | Exempt | |
| 218799 | EPE | 2025 | Oakland | Southfield Rd | Metro Region | 0 | Technical Support | Exempt | |
| 218801 | EPE | 2026 | Oakland | Southfield Rd | Metro Region | 0 | Technical Support | Exempt | |
| 219009 | CON | 2024 | Wayne | Southfield Rd | Southfield Road west of the city limits to east of railroad crossing | 0.483 | New Non-Motorized Path | Exempt | |
| 218787 | CON | 2023 | Washtenaw,Lapeer,Saginaw,Allegan | STATEWIDE | River Raisin Bank | 0 | Aerial Herbicide Application | Exempt | |
| 208534 | NI | 2023 | Wayne | Transit Capital | Areawide | 0.000 | Transit Capital FY18/19 Section 5307 | Exempt | |
| 218523 | NI | 2023 | Washtenaw | Transit Capital | Areawide | 0 | FY 2023 Section 5310 - capital | Exempt | |
| 218523 | NI | 2023 | Washtenaw | Transit Capital | Areawide | 0 | FY 2023 Section 5310 - capital | Exempt | |
| 218526 | NI | 2023 | Washtenaw | Transit Capital | Areawide | 0 | FY 2023 Section 5310 - capital | Exempt | |
| 218526 | NI | 2023 | Washtenaw | Transit Capital | Areawide | 0 | FY 2023 Section 5310 - capital | Exempt | |
| 218528 | NI | 2023 | Washtenaw | Transit Capital | Areawide | 0 | FY 2023 Section 5310 - capital | Exempt | |
| 218528 | NI | 2023 | Washtenaw | Transit Capital | Areawide | 0 | FY 2023 Section 5310 - capital | Exempt | |
| 218529 | NI | 2023 | Washtenaw | Transit Capital | Areawide | 0 | FY 2023 Section 5310 - capital | Exempt | |
| 218529 | NI | 2023 | Washtenaw | Transit Capital | Areawide | 0 | FY 2023 Section 5310 - capital | Exempt | |
| 203926 | NI | 2023 | Wayne | Transit Capital | Areawide/City of Detroit/Wayne County | 0.000 | Purchase vehicles, office and security equipment. | Exempt | |
| 205176 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205176 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205199 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Purchase Replacement Buses | Exempt | |
| 205245 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205245 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205245 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |

# SEMCOG 2023 Summer TIP/RTP Amendment List

| Job no. | Phase | Fiscal Year | County | Project Name | Limits | Length | Project Description | Air Quality | Notes |
|---|---|---|---|---|---|---|---|---|---|
| 205245 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205245 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205245 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205245 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205245 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205245 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205245 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205259 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205259 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205259 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205259 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205259 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205259 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205259 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205259 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 205259 | NI | 2023 | Wayne | Transit Capital | DDOT Service Area | 0.000 | Transit Capital | Exempt | |
| 120052 | CON | 2024 | Wayne | US-12 | Haggerty Road to Pershing Street | 2.545 | Milling and Two Course Asphalt Resurfacing | Exempt | |
| 210324 | ROW | 2023 | Wayne | US-12 | US-12 between I-96 and Cass | 1.621 | Major widening, assume 2 lanes in each direction, work also includes bike lanes and transit lanes | Exempt | |
| 200202 | CON | 2023 | Washtenaw | US-12 | US-12 from west of Platt Rd to west of US-23 interchange | 1.023 | Operational improvements | Exempt | |
| 215788 | ROW | 2023 | Washtenaw | US-23 | Joy Road over US-23 | 0 | Bridge Replacement | Exempt | |
| 215769 | ROW | 2023 | Washtenaw | US-23 | Warren Road over over US-23 | 0 | Bridge Replacement | Exempt | |
| 113501 | CON | 2026 | Washtenaw | US-23 BR | I-94 BL to M-14 | 1.239 | Reconstruct within the existing lane configurations without widening. possible Asphalt Stabilized Crack Relief Layer (ASCRL) in sections. | Exempt | |
| 210971 | CON | 2025 | Washtenaw | US-23BR N | M-14 EB at Barton Drive | 0.750 | Provide free-flow on-ramp, improve the Barton Dr. off-ramp. | Exempt | |
| 218688 | CON | 2025 | Wayne | Virginia Park St | Virginia Park Street | 0.422 | 0.4 miles of curb-to-curb reconstruction of historic 30-foot-wide road profile using historically appropriate stone curb and brick roadway using a combination of salvaged and new brick. Replacement of worn concrete sidewalk, driveways that front the street, update noncompliant crosswalk ramps to meet ADA standards, reconstruct inspected sewer segments requiring replacement, add areas of new shade street trees, minimal upgrades to existing site furnishings that include enhancing recently replaced historic light poles to include historically-sensitive light pole bases. A plaque in commemoration of the historical events at this location will be included. | Exempt | |
| 218446 | CON | 2026 | Oakland | W 12 Mile Rd | 12 Mile Rd, Meadowbrook Rd to Farmington Rd | 7.564 | 3R Road Project | Exempt | |
| 210745 | CON | 2024 | Oakland | W Silver Bell Rd | Brown-Giddings-Silverbell from Jamm Rd to Lapeer Rd (M-24) | 2.705 | Road Rehab | Exempt | |
| 219013 | CON | 2024 | Monroe | Wm Sterling SP Access | River Raisin Heritage Trail | 0.41 | New Non-Motorized Path | Exempt | |
| TBD | CON | 2023 | Washtenaw | Ann Arbor Connected Environment Reimagined (AACE 2.0) | City of Ann Arbor and adjacent communities | 0 | Retrofit existing equipment at approximately 54 locations; lease 100 U of M fleet vehicles for system testing; heat map testing; project-related information systems, data collection and repository; and outreach, education, and workforce development. | Exempt | Federal share: $9,859,240 FY22 Advanced Transportation Technology and Innovation (ATTAIN) award. Grant implementation will be coordinated by UMTRI. |