Chapter V- Environmental Resources, Air Quality, and Environmental Justice

Background

Transportation project impact analysis on communities and the natural environment is an element of project development, environmental documentation, and design. As the primary agency responsible for environmental compliance regarding transportation projects, DelDOT follows FHWA guidance regarding Planning and Environment Linkages (PEL). The FHWA describes the Planning and Environment Linkages (PEL) as representing a collaborative and integrated approach to transportation decision-making that 1) considers environmental, community, and economic goals early in the transportation planning process, and 2) uses the information, analysis, and products developed during planning to inform the environmental review process. FHWA also has an Environmental Review Toolkit website, and FTA has an Environmental Analysis and Review site to assist states and MPO's with their environmental compliance efforts regarding historic preservation, natural resource avoidance and mitigation, and conformity with the clean air act. As the State of Delaware's Transportation Agency, DelDOT is committed to ensuring environmental impacts are considered when planning and constructing transportation projects in Kent County, Delaware. The 2019 DelDOT Long Range Transportation Plan (Innovation in Motion) includes Environmental Stewardship as one of its ten goals. This goal calls for DelDOT to "protect and enhance the environment through sustainable best practices, integration of environmental considerations into planning and design, and responsible energy consumption" (DelDOT, 2019. P. ES-3).

The D/KC MPO further leverages environmental considerations included in Long Range and Comprehensive Planning efforts by our State, Regional, and Local MPO partners when considering and prioritizing transportation projects in Kent County. Local Comprehensive and State Agencies Long Range Plans provide detailed summaries regarding Kent County's environmental resources. As previously mentioned, the 2018 Kent County Levy Court Comprehensive Plan and the 2019 City of Dover Comprehensive Plan provide detailed summaries on environmental and natural resources. These plans offer conservation, natural, and environmental resource summaries in chapter 5 of both comprehensive plans. The summaries include topography, soil types, water resources, hydrology, woodland habitat, coastal zone, flooding, climate change, agricultural lands, and air quality. Therefore, individuals are directed to these two comprehensive plans for detailed information about environmental and natural resources in Kent County.

Regarding transportation projects, there are other State agencies in addition to DelDOT that are responsible for ensuring environmental compliance and natural resource protection occur in Kent County. The Delaware Department of Natural Resources and Environmental Control (DNREC) reviews air quality for transportation conformity actions, climate change concerns for proposed transportation networks in low lying and frequently flooded areas, water and wetland impacts from road construction, and recreational parklands connecting bike, pedestrian, and multimodal trails. The Delaware Department of Agriculture reviews proposed transportation construction projects that may impact current and foreseeable farmland preservation actions and forest preservation actions. Within the Delaware Department of State is the Division of Historical and Cultural Affairs (formerly the State Historic Preservation Office/SHPO) reviews transportation actions regarding potential impact to archeological sites and historic properties.

This chapter summarizes the steps the D/KC MPO uses to consider environmental impacts for the Innovation 2045 MTP transportation projects. It also reviews the federal and State regulatory agencies' consultation efforts relative to this MTP. Recognizing environmental compliance challenges at the earliest stage of transportation planning can help avoid or mitigate undesirable environmental impacts on transportation projects. This approach helps reduce the risks that are inherent in an uncertain planning process and helps prevent the expenditure of unnecessary time and resources.

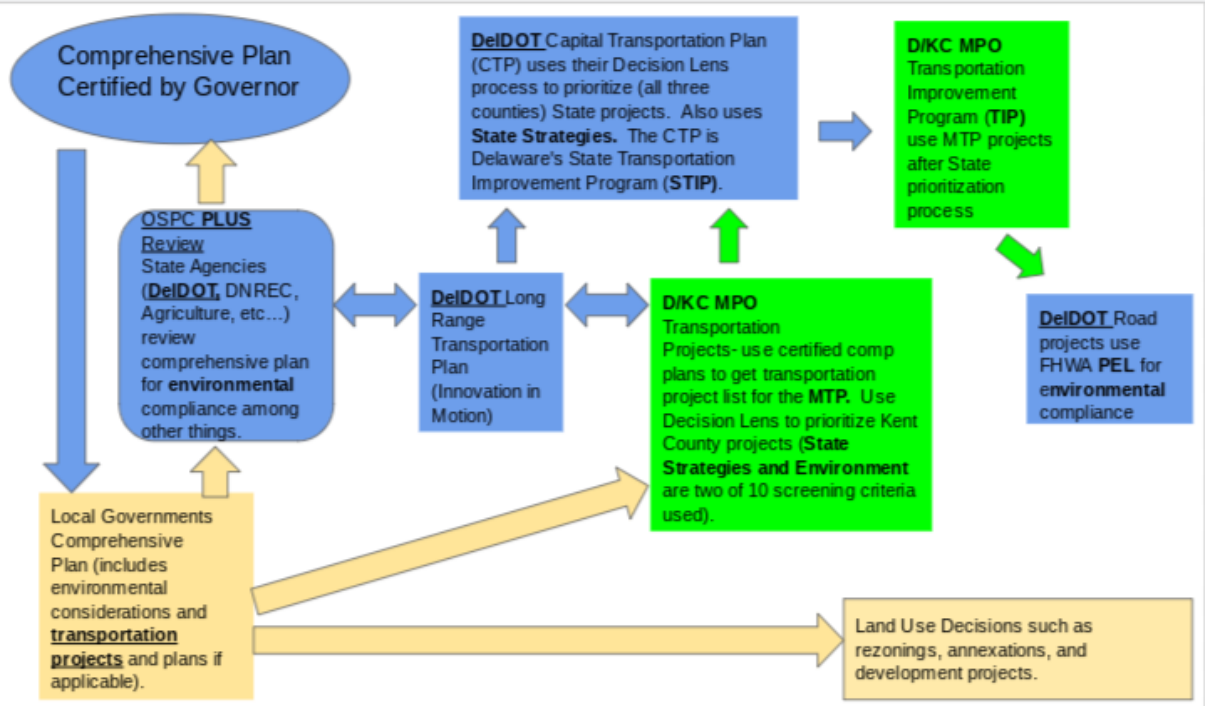
Environmental Analysis

As briefly described in Chapters I and IV, the D/KC MPO leverages Long Range and Comprehensive Planning efforts by our Federal, State, Regional, and Local MPO partners. These long range and comprehensive planning documents address environmental impacts resulting from future growth scenarios. While land-use decisions are decided at the local county, and municipal levels, transportation infrastructure construction, maintenance, and service is mostly a state responsibility. Local land-use decisions rely on future growth scenarios described in comprehensive plans certified by the State through the Office of State Planning Coordination (OSPC). The plans also identify potential environmental impacts from future growth, the annexation of land, and proposed long range development, economic, or transportation projects. For comprehensive plans to be certified, State agencies reviewed the documents through the OSPC's Preliminary Land Use Service (PLUS). This review ensures that the plans meet all comprehensive plan requirements (environmental, natural resource, and transportation plan elements, etc.), Delaware's Strategies for State Policies and Spending, and are not contrary to any State regulations such as environmental and natural resource regulations. Once the submitted documents meet all requirements, the Governor certifies the comprehensive plans.

The OSPC publishes the Delaware Strategies for State Policies and Spending. This document is a land-use policy guide used to direct State spending like transportation projects in one of five investment priority areas. DelDOT's transportation investments reflect these same priorities: Growth related infrastructure directed towards investment level areas 1 and 2; Open Space and Agricultural preservation directed towards investment level areas 3 and 4; and Environmental conservation efforts predominantly directed in the 5th area called, "out of play" (DelDOT, 2019, P. II-12). All Delaware State Agencies that review environmental and natural resource compliance for transportation projects utilize the Delaware Strategies for State Policies and Spending as a guide to avoid environmental impact. The Delaware Strategies for State Policies and Spending and the Investment Level Area map is updated every five years, and State agencies, local governments, and the general public are given the opportunity to comment on the document.

The diagram below provides a snapshot of how local comprehensive plans and comprehensive plan transportation projects have an environmental review. Lower left-hand corner shows local governments' comprehensive plans being developed and submitted to OSPC. State agencies such as DNREC and DelDOT review comprehensive plans to ensure compliance with environmental and transportation requirements. While comprehensive plans provide acknowledgment of environmental analysis, additional guidance regarding projects that may require a more detailed environmental review is provided by DNREC. For example, local comprehensive plans should address environmental impacts that may result from future growth scenarios. These future growth scenarios often include transportation projects that DelDOT evaluates against its Long Range Transportation Plan (LRTP). Once the comprehensive plan

meets OSPC requirements, it is forwarded to the Governor for certification and then sent back to the local government. The local comprehensive plans used to make Land Use decisions.



Source: D/KC MPO

The D/KC MPO reviews comprehensive plans for any identified transportation projects when updating its Metropolitan Transportation Plan (MTP) and incorporates initiatives from DelDOTs LRTP. The MPO utilizes Decision Lens, a software prioritization and resource optimization system, to prioritize projects based on **ten screening criteria**. Each of the ten criteria is weighted differently and has a percentage value, which, when added together, equals 100%. The State Strategies are ranked second out of the ten criteria with a value of 13.75%. Environmental considerations rank fourth with a value of 9.36%. **Note**: See chapter VI for additional information on Decision Lens.

In addition to results from the other eight criteria, D/KC MPO MTP projects can receive a high priority ranking if they are:

(1) are located within State Strategy growth areas (levels 1 or 2) and not environmental preservation areas (levels, 3, 4, or out of play); and

(2) is considered an "exempt" regionally significant project and requires no National Environmental Policy Act mitigation.

After the D/KC MPO Council adopts the MTP, the MPO projects are considered and prioritized at the State level as part of Delaware's Capital Transportation Plan (CTP). Projects from all three counties in Delaware are prioritized using DelDOT's DecisionLens criteria. The resulting list becomes the State Transportation Improvement Program (STIP). D/KC MPO projects with a high STIP ranking will be incorporated into the D/KC MPO Transportation Improvement Program (TIP) and, thus, likely to be funded for construction and implementation. Most projects

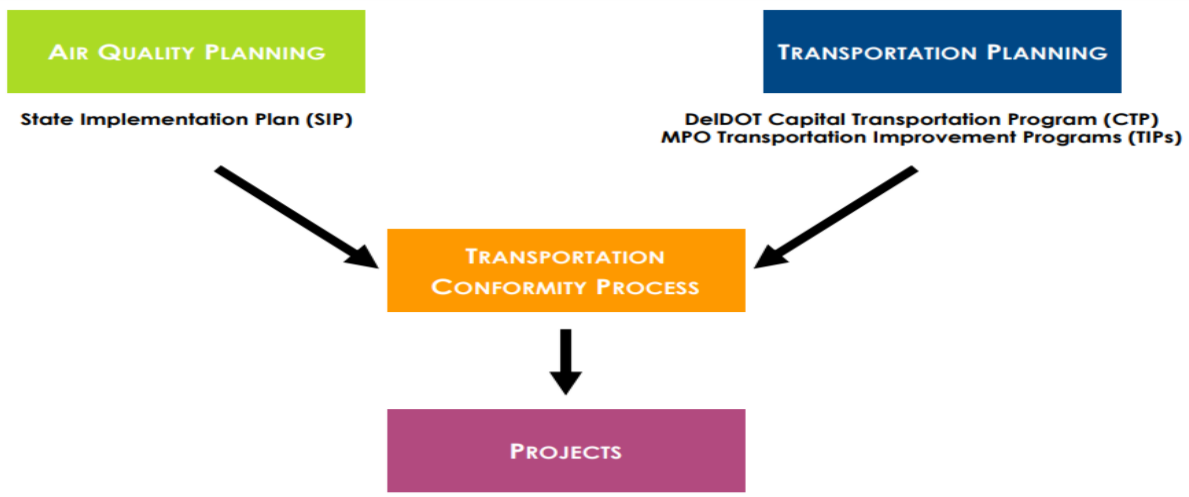
will be constructed after NEPA review and compliance through FHWA PEL (planning and environmental linkage) considerations.

Air Quality

Transportation conformity was first introduced and included in the 1977 CAA to ensure that federal funding approval for transportation activities are consistent with air quality goals. These goals are set in the air quality portion of the State Implementation Plan (SIP) in each State. Transportation conformity requirements were made substantially more rigorous in the CAA Amendments of 1990. The implementation details of the CAA requirements were first issued in the November 24, 1993, Federal Register. The regulations establish the criteria and procedures for transportation agencies to demonstrate that air pollutant emissions from MTP, TIP, and projects funded or approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA) are consistent with the State's air quality goals in the SIP. The most recent amendment of transportation conformity implementation requirements was issued in April 2012. The SIP is a federally-approved and enforceable plan by which an area identifies how it will attain and/or maintain the health-related primary and welfare-related secondary NAAQS. Under the CAA, transportation and air quality modeling procedures must be coordinated to ensure that the TIP and the LRTP are consistent with the SIP applicable to Kent County.

Transportation conformity requires nonattainment and maintenance areas to demonstrate that all future transportation projects will not hinder the region from reaching and maintaining its attainment goals. This process is also explained in the DelDOT 2019 Long Range Transportation Plan (Innovation in Motion) on pages I-74 and I-75. The integration of transportation and air quality planning is intended to ensure that transportation plans, programs, and projects will not:
1) Cause or contribute to any new violation of any applicable NAAQS;
2) Increase the frequency or severity of any existing violation of any applicable NAAQS;
3) Delay timely attainment of any applicable NAAQS, any required interim emissions reductions, or other NAAQS milestones.

The US Environmental Protection Agency (EPA) has a Transportation Conformity website which provides additional information on the air conformity process. This site also provides policy guidance issued by EPA to assist state and local transportation and air quality agencies in implementing the transportation conformity program. Additionally, the FTA and FHWA both have websites that provide specific air conformity information as related to MPO's.



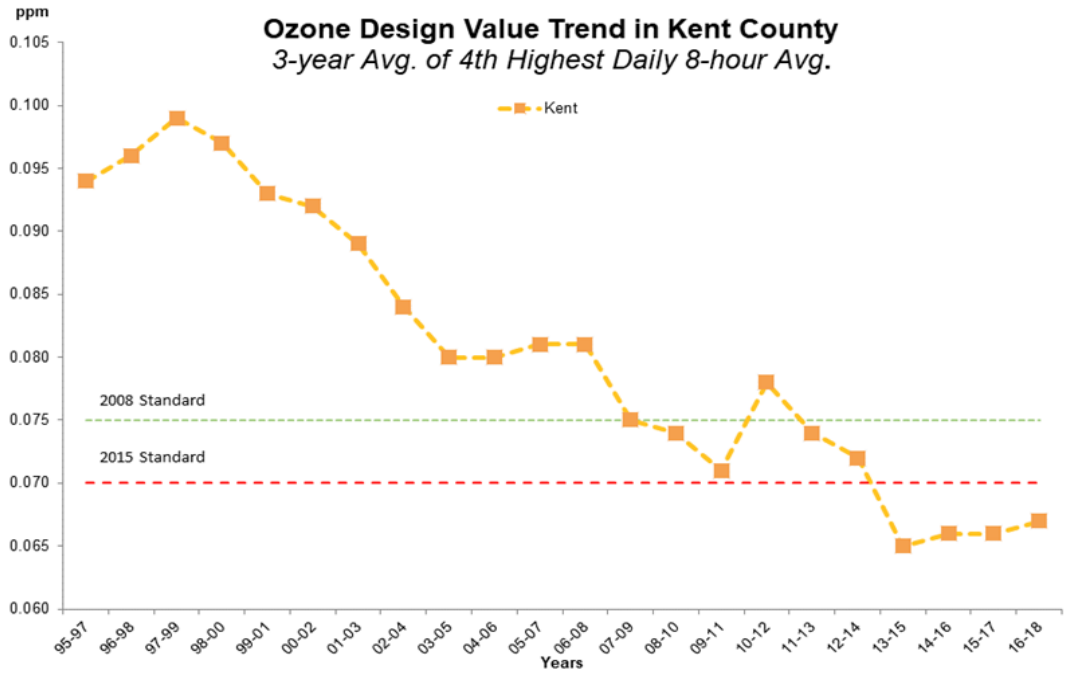
Source: DNREC Division of Air Quality

The Clean Air Act (CAA) requires the EPA to set national ambient air quality standard (NAAQS) designations for pollutants considered harmful to public health and the environment. A nonattainment area is any area that does not meet the primary or secondary NAAQS. Once a nonattainment area meets the standards and additional re-designation requirements in the CAA (Section 107(d)(3)(E)), EPA will designate the area as a maintenance area. The D/KC MPO is required by law to demonstrate that the MTP conforms to the transportation emission budgets in the Statewide Implementation Plan (SIP) for Delaware. If emissions generated from the projects programmed in the MTP are equal to or less than the emission budgets in the SIPs, then conformity has been demonstrated. The D/KC MPO adopted its previous Metropolitan Transportation Plan (MTP) on January 4, 2017, and was considered to have been in conformity with the 2008 Ozone Standard.

However, on February 16, 2018, the US Court of Appeals' decision regarding the South Coast Air Quality Management District case required areas previously not in attainment before 2008, to revert to the 1997 ozone standard. This legal challenge to the ozone standards released by the EPA was partially upheld. The D/KC MPO was considered to be in attainment for the stricter 2008 and 2015 standards. However, the 1997 standard, which was previously revoked by EPA (relieving Kent County of performing transportation conformity for years), was partially reinstated by the 2018 Court of Appeals decision. On April 23, 2018, US Department of Transportation Interim Guidance on Conformity Requirements for the 1997 Ozone NAAQS was released to MPOs. The result is that all D/KC MPO TIPs and MTPs in Kent County must again demonstrate conformity to the 1997 8-Hour Ozone standard.

Innovation 2045 MTP Conformity Determination

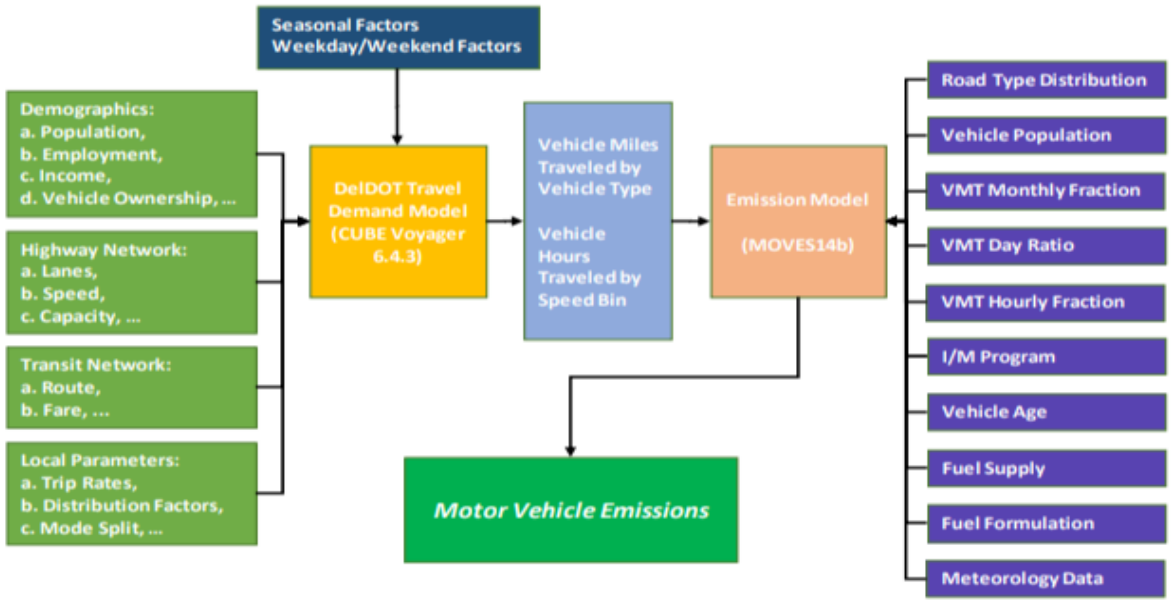
According to the US Environmental Protection Agency's Delaware Nonattainment/Maintenance Status website, Kent County (as part of the Philadelphia-Wilmington-Atlantic City nonattainment area) is considered in nonattainment for the 1997 8-hour ozone standard.



Source: DNREC Division of Air Quality

The methodology and data assumptions used for the conformity analysis are very similar to those found in the July 2019 D/KC MPO Air Quality Conformity Analysis Report. Detailed emission results are presented for each analysis year, by summer weekday and daily and annual average. Modeling input and output files have been reviewed by the Delaware Department of Natural Resources and Environmental Control (DNREC).

Exhibit 3: Air Quality Analysis Modeling Process



The Innovation 2045 MTP must demonstrate that the projects support the attainment of National Ambient Air Quality Standards (NAAQS) and conform to the State Implementation Plan (SIP) for air quality. In other words, the MTP projects, when considered collectively, need to contribute to the air quality improvement goals embodied in the Clean Air Act Amendments of 1990. To document this process, DelDOT consultants perform a series of tests with computer models that estimate air pollution levels from mobile sources over the next 25 years. Once the D/KC MPO finds that the plan meets the regional air quality goals, federal agencies certify that the Plan is in conformity. In other words, the D/KC MPO ensures that its MTP conforms to air quality improvement goals.

Like the July 2019 conformity analysis completed for the D/KC MPO FY 2020-2023 Transportation Improvement Program (TIP) and 2040 Metropolitan Transportation Plan (MTP), future emissions levels are estimated using computer models. First, a travel demand model is used to estimate travel patterns and congestion levels from the transportation system laid out in the plan. Next, an Air quality model uses data output from the travel demand model to estimate the amount of emissions from vehicles, measured in tons per day produced in future years. The air quality model incorporates many factors, including the number and types of vehicles that will be on the road, the speeds at which they will travel, and the effects of technology on vehicles and fuels. The DelDOT consultants compare vehicle information from the Delaware Department of Motor Vehicles (type and number of registered vehicles, etc.) and will include proposed Roadway and Safety projects (such as corridor improvements, highway widening, and new roadway construction) in the model. Proposed Regionally significant transportation projects in Kent County will also be identified in the model.

D/KC MPO Innovation 2045 MTP Regionally Significant Projects							
D/KC MPO Map Number	Project Name	Regionally Significant / Non-Exempt Projects (Y/N)	Project Supporting Document	Document Page	Decision Lens Score	FY21-26 CTP Ranking	Estimated year completed
Roadway							
MTP-2021-01	DE 10 (Camden Bypass Old North Road to DE 19)	Y	FY20 TIP	42	0.59	3	2024
MTP-2021-02	DE 10 (Camden Bypass South Street to Rising Sun Road)	Y	FY20 TIP	44	0.60	12	2024
MTP-2021-07	Scarborough Road and C-D Roads (Dover Downs)	Y	FY20 TIP	34	0.61	112	2035
Safety							
MTP-2021-20	US 13 Widening (Lochmeath Way to Puncheon Run)	Y	FY20 TIP	23	**0.77**	24	2027
MTP-2021-21	US 13 Widening (Walnut Shade Road to Lochmeath Way)	Y	FY20 TIP	23	**0.64**	25	2027

Innovation 2045 Regionally Significant Projects.

The analyses will also include the network based on the in-service date (completion date) and must demonstrate that the transportation emissions from the implementation of the MTP will be less than allowable levels, referred to as budgets. For Innovation 2045 MTP to be considered in conformity, the results of the budget tests for ozone emissions must pass, thus demonstrating conformity.

From August through September 2020, the D/KC MPO used Whitman, Requardt & Associates, LLP (WRA) in association with the Delaware Department of Transportation and Delaware Department of Natural Resources and Environmental Control to draft the "Air Quality Conformity Analysis Report Dover/Kent County Metropolitan Planning Organization FY 2021-2024 Transportation Improvement Program and 2045 Metropolitan Transportation Plan

(MTP)." This report documents the analysis of Air Quality implications of the Dover/Kent County MPO -FY21-24 TIP and 2045 MTP and demonstrates the transportation conformity of the Dover/Kent County MPO's -TIP and MTP under the 8-hour ozone and NAAQS. Kent County has never been designated as non-attainment area for PM2.5. However, the PM2.5 emission analyses are also included in this report - for informational purposes only – to demonstrate the PM2.5 emission in Kent County for the Dover/Kent County MPO's -TIP and MTP.

Exhibit D and E present the results of the budget tests for ozone emissions.

Exhibit D: VOC Emission Test Results - MVEB Test (tons/summer weekday)

VOC(tpsd)	2020	2030	2040	2045
Emissions	1.69	0.76	0.56	0.55
2009 Budget	3.95	3.95	3.95	3.95
Result	Pass	Pass	Pass	Pass

Exhibit E: NOx Emission Test Results - MVEB Test (tons/summer weekday)

NOx(tpsd)	2020	2030	2040	2045
Emissions	2.64	0.98	0.75	0.76
2009 Budget	9.04	9.04	9.04	9.04
Result	Pass	Pass	Pass	Pass

All baselines and budget tests pass, which demonstrates conformity. Both VOC and NOx emission are aligning to the past analysis with minor differences which reflect the impact of the minor change in social-economic forecasting and the new proposed projects in the updated MTP. The full air conformity report can be found in appendix B.

Environmental Justice

The FHWA Environmental Review Toolkit website provides a good Environmental Justice definition. "**Environmental Justice** at FHWA means identifying and addressing disproportionately high and adverse effects of the agency's programs, policies, and activities on minority populations and low-income populations to achieve an equitable distribution of benefits and burdens. This page contains resources for practitioners, including guidance, reference documents, and case studies."

In other words, Environmental Justice (EJ) is a process that ensures minority and low-income communities do not bear more than their share of environmental burdens. Historically, residents living within communities that face disproportionately negative impacts from transportation projects, regulations, or activities are often minorities or people of lower-income status. Furthermore, these residents and communities have often been excluded from transportation policy-setting or decision-making processes.

The Environmental Justice process is an approach to the social justice movement found in Title VI of the 1964 Civil Rights Act. The Act is further defined in Federal Executive Order 12898, signed in 1994, which addresses environmental injustice in minority and low-income

communities. Executive Order 12898 also states: "Each Federal agency shall make achieving environmental justice part of its 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." The Executive Order identifies minority populations as belonging to any of the following groups:

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

In addition to minority population definitions, the Executive Order also defines low-income populations as those whose household incomes are at or below the US Department of Health and Human Services poverty guidelines (e.g., $26,200 annual income for a family of four in 2020).

On November 2, 2016, the D/KC MPO adopted the Title VI Environmental Justice Statement. It was the first time the D/KC MPO formally adopted Environmental Justice (EJ) principles, integrating three fundamental EJ principles into transportation planning:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic impacts, on minority populations and low-income populations;
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

As part of the Innovation 2045 MTP update, EJ principles were among the ten screening criteria used when considering transportation projects in Kent County. Explained in more detail in Chapter VI, the D/KC MPO updated its decision lens process, including updating the EJ specific transportation project screening criteria. This criterion, "**Impact on the Public/Social Disruption and Economic Justice**," is defined as *the extent that the project impacts existing communities and neighborhoods, including disadvantaged populations identified in the (2016) Environmental Justice Plan.* The screening criteria assesses transportation projects under the following three EJ aspects:

- **Impact on the Public:** *The project will have a detrimental impact on any member of a community, such as caused by a major road construction/reconstruction project;*
- ***Social Disruption:*** *The project avoids identified areas of racial concentration (minority populations) as defined in the Title VI Plan; and*
- ***Economic Justice:*** *The project is compared with areas of low-income concentration, as identified in the Title VI plan.*

Once the transportation project is assessed, that project can generate a quantitative value of one (1) (project **will not** impact a member; **will improve** areas of racial concentration; and/or **will improve** conditions in a low-income concentration area) or zero (0) (project **will** impact a member; **will not improve** areas of racial concentration; and/or **will not improve** conditions in a low-income concentration area) in each of the three EJ aspects.

Additionally, the D/KC MPO Public Outreach Manager initiated several actions to help reach EJ groups regarding Innovation 2045. Specifically, there were:

- pop up outreach in libraries, often during times when events were scheduled that would attract seniors or the homeless;
- email blast to many churches including churches that have minority congregations;
- published two (2) media ads in Spanish, inviting people to come to Innovation 2045; and
- published announcements and handed out cards to several different committees that deal with the disabled population.

Mitigation Efforts

D/KC MPO mitigation efforts for natural, cultural, environmental, and environmental justice impact from proposed transportation projects, are best described in two parts. The utilization of the D/KC MPO Decision Lens selection criteria makes up the first part of the D/KC MPO mitigation effort. Moreover, implementing the Innovation 2045 MTP will advance many of the 2045 MTP strategies, goals, objectives, and performance measures is another vital aspect of the mitigation effort. Improved roadways, pedestrian and bicycle facilities, transit options, freight projects, multimodal initiatives, proposed transportation studies, and safety projects will improve the transportation system in Kent County.

The second part of the D/KC MPO mitigation effort relies on the National Environmental Policy Act (NEPA) compliance for transportation projects. Mitigation considerations are part of the NEPA process. However, not every transportation project will require the same type or level of NEPA analysis. Some projects, such as new roadways, involve major construction with considerable earth disturbance. Others, like intersection improvements and resurfacing projects, require minor construction and minimal earth disturbance. Before any transportation project construction, DelDOT is required to complete a NEPA analysis. In doing so, it must include environmental mitigation efforts through their NEPA documentation process. Environmental mitigation requirements are outlined in 40 CFR 1500 (Council on Environmental Policy), suggesting five mitigation steps (40 CFR 1508.20):

- Avoiding the impact altogether by not taking a particular action or parts of an action;
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
- Compensating for the impact by replacing or providing substitute resources or environments.

In addition to the natural, cultural, and environmental mitigation efforts mentioned above, DelDOT and the D/KC MPO are committed to using extra efforts to involve minority, low-income, and disable individuals and communities in the transportation planning process. For example, project selection and NEPA documentation focus on the potentially adverse impacts of significant street and highway construction projects. Proposed construction of new roadways

along new rights-of-way with the potential to split or isolate parts of any community would be considered as having a negative impact on EJ communities. Conversely, mode investments in transit service and bicycle and pedestrian facilities were considered to have a positive EJ impact on communities. Finally, transportation projects will receive additional selection value if the project provides additional, lower-cost transportation options to increase mobility for members in these communities.