Chapter 1: Envision the Future

Introduction

NOACA's long-range plan, eNEO2050: An Equitable Future for Northeast Ohio is a bold step forward for Northeast Ohio to address decades of structural bias in the region's transportation systems so that all stakeholders have the opportunity for a more vibrant future. The question of equity must be viewed within the framework of ensuring all people have access and mobility to enable them to actively participate in the economy and to enjoy the quality of life the region has to offer. NOACA's vision statement identified in its Regional Strategic Plan, *Going Forward, Together*, adopted in 2015 states: NOACA will STRENGTHEN regional cohesion, PRESERVE existing infrastructure, and BUILD a sustainable multimodal transportation system to SUPPORT economic development and ENHANCE quality of life in Northeast Ohio.

It is clear that transportation investments and the physical location and type of transportation infrastructure have a profound potential to affect the region's future. It is more critical than ever, given the region's longstanding challenges with declining or flat population, to plan and develop such projects strategically in order to leverage public dollars to best reignite growth and the economic competitiveness of the region. However, *eNEO2050* goes beyond this necessity to challenge what NOACA must do to envision—and attain—a more equitable future based on several potential future scenarios. These scenarios explore various approaches to transportation infrastructure investments within the context of workforce mobility and accessibility to the employment centers across the five counties that could make a real difference, especially to low-income and minority populations. NOACA explores the implications of prospective capital investments across each of these scenarios on a wide range of performance measures. Such measures naturally focus on the transportation network, but they also tap equity, economic development, housing, environment, and land-use impacts of investment decisions as they are all intrinsically linked.

How is *eNEO2050* Different from Previous Efforts?

eNEO2050 builds upon the foundation of previous planning efforts led by NOACA, yet incorporates a much more comprehensive focus on equity and a more careful examination of the relationships between transportation and other facets of a resilient region, such as land use, economic development, environmental quality, climate, and health. *eNEO2050* also adopts scenario planning and performance measures and targets as part of its future outlook, which was not part of previous NOACA long-range plans (though it was part of a larger regional visioning effort known as Vibrant NEO 2040; see below and Chapter 2).

NOACA began to shape *eNEO2050* formally in January 2020, but the concept of equity and the relationship to transportation has been evolving for years in the work of the agency. Equity across jurisdictions, from urban to suburban to rural. Equity between modes, from automobile to transit to bicycle and pedestrian. Equitable investments to ensure equitable access and mobility. Equitable transportation to lead to equal opportunity. Furthermore, although equity was always intended to be a priority for this long-range plan, the events that unfolded over the course of the last year made it an especially poignant topic. The NOACA Board felt that the history of racism in Northeast Ohio and throughout the entire nation rendered this subject much too important for a

single section or chapter within the long-range plan; it demanded its rightful place as a marquee issue.

NOACA embraced a renewed and strengthened commitment to equity through its transportation and planning efforts articulated as a formal resolution passed by the agency's Board of Directors on June 12, 2020. The following excerpt illustrates this commitment:

> *Although NOACA has made advances toward achieving equity in its planning and resource allocation and has realized some success through the process of continuous improvement and best practices, to eradicate racism and its negative effects on our communities of color, we are committed to exploring, listening and learning to further address the impacts that racism may have in decision making and organizational practices. We are committed to understanding, evaluating and measuring how our policies and actions impact equity in our region. We will continue to embrace diversity, strive for equity, and seek inclusion in all our efforts; and, we will ensure that these actions remain explicit values that are always reflected as a core component of our work.*[1]

NOACA has implemented this commitment to equity throughout *eNEO2050*, where the "e" in the title of the document represents equity, and each of the chapter titles begins with "e" to remind the reader of how equity is central to all the discussions (see the "Summary of Chapters" section at the end of this chapter). NOACA also engaged public stakeholders with the goal of equity in mind, despite the difficulty wrought by the pandemic and accompanying lockdowns and shutdowns that hampered in-person engagement efforts. NOACA incorporated a comprehensive review of how inequity of past economic development, housing, land use, and environmental approaches created the current landscape, and identified opportunities to improve access to opportunity and mitigate disproportionately harmful impacts. Finally, NOACA did not propose a simple, single future transportation plan for public consideration, but rather explored, modeled, and thoroughly vetted four comprehensive and distinct scenarios of how the region might invest in its transportation system differently. NOACA built each scenario around the critical theme of workforce mobility and access, particularly for low-income and minority communities, and both defined and calculated hundreds of performance measures to clarify the myriad of impacts of each scenario on what matters most.

Expectations (Federal Requirements)

Figure 1-1 identifies the requirements of the metropolitan planning process related to the transportation plan. These requirements were introduced by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (Public Law 109-59) and the Moving Ahead for Progress in the 21st Century (MAP-21) Act (P.L. 112-141); they continued under the Fixing America's Surface Transportation (FAST) Act (Pub. L. No. 114-94) and the Metropolitan Transportation Planning rule (23 CFR Parts 450 and 771) as contained in the Code of Federal Regulations (CFR). The table also indicates where in *eNEO2050* staff particular elements are contained. The MAP-21/FAST Act requirements, not included in NOACA's last long-range plan, *Aim Forward 2040*, because they were delayed until May 27, 2018, are included as well; however, the

[1] Northeast Ohio Areawide Coordinating Agency (NOACA), NOACA Board Resolution 2020-029: Commitment to Racial Equity in Planning, June 12, 2020; https://www.noaca.org/home/showpublisheddocument?id=25175 ((accessed April 12, 2021).

requirements of the Metropolitan Transportation Planning Rule are delayed until the metropolitan transportation plan update, which occurs two years after the U.S. Census Bureau releases its notice of Qualifying Urban Areas following the 2020 Census. These are identified in the table. Please note that NOACA has continued to work toward implementation of requirements related to MAP-21 and the FAST Act; NOACA staff summarize those efforts in this document.

Table 1-1. Federal Requirements and Status[2]

FEDERAL REQUIREMENTS	*eNEO2050* REFERENCE
(a) The metropolitan transportation planning process shall include the development of a transportation plan addressing no less than a 20-year planning horizon as of the effective date. In formulating the transportation plan, the MPO shall consider factors described in § 450.306 as the factors relate to a minimum 20-year forecast period. In nonattainment and maintenance areas, the effective date of the transportation plan shall be the date of a conformity determination issued by the FHWA and the FTA. In attainment areas, the effective date of the transportation plan shall be its date of adoption by the MPO.	See Chapter 10 for projects and Chapter 11 for the fiscally constrained plan.
(b) The transportation plan shall include both long-range and short-range strategies/actions that provide for the development of an integrated multimodal transportation system (including accessible pedestrian walkways and bicycle transportation facilities) to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand.	See Chapter 11 for the fiscally constrained plan (other recommendations and actions in Chapters 5-8).
(c) The MPO shall review and update the transportation plan at least every 4 years in air quality nonattainment and maintenance areas and at least every 5 years in attainment areas to confirm the transportation plan's validity and consistency with current and forecasted transportation and land use conditions and trends and to extend the forecast period to at least a 20-year planning horizon. In addition, the MPO may revise the transportation plan at any time using the procedures in this section without a requirement to extend the horizon year. The MPO shall approve the transportation plan (and any revisions) and submit it for information purposes to the Governor. Copies of any updated or revised transportation plans must be provided to the FHWA and the FTA.	*eNEO2050* meets the requirement. NOACA's last plan was adopted in June 2017 and was found to conform with the transportation conformity requirements in July 2017.

[2] Based on 23 CFR Section 450.324: Development and Content of the Metropolitan Transportation Plan [81 FR 34135, May 27, 2016, as amended at 81 FR 93473, Dec. 20, 2016; 82 FR 56544, Nov. 29, 2017]; https://www.law.cornell.edu/cfr/text/23/450.324 (accessed February 24, 2021).

(d) In metropolitan areas that are in nonattainment for ozone or carbon monoxide, the MPO shall coordinate the development of the metropolitan transportation plan with the process for developing transportation control measures (TCMs) in a State Implementation Plan (SIP).	This update meets the requirement; however, there has been no active mobile source SIP development for TCMs during the past 4 years.
(e) The MPO, the State(s), and the public transportation operator(s) shall validate data used in preparing other existing modal plans for providing input to the transportation plan. In updating the transportation plan, the MPO shall base the update on the latest available estimates and assumptions for population, land use, travel, employment, congestion, and economic activity. The MPO shall approve transportation plan contents and supporting analyses produced by a transportation plan update.	See Chapter 1 for recent population and employment trends. Chapter 9 provides projections and future transportation scenarios. NOACA's travel forecast model relies on this and other routinely updated data to project future transportation conditions in the region.
(f) The metropolitan transportation plan shall, at a minimum, include: (1) The current and projected transportation demand of persons and goods in the metropolitan planning area over the period of the transportation plan;	See Chapter 9 for current and projected conditions captured by NOACA's travel forecast model.
(f)(2) Existing and proposed transportation facilities (including major roadways, public transportation facilities, intercity bus facilities, multimodal and intermodal facilities, nonmotorized transportation facilities (e.g., pedestrian walkways and bicycle facilities), and intermodal connectors that should function as an integrated metropolitan transportation system, giving emphasis to those facilities that serve important national and regional transportation functions over the period of the transportation plan.	See Chapter 3 for the existing regional context. Chapter 9 provides future transportation scenarios. Chapter 11 includes projects within the fiscally constrained plan.
(f)(3) A description of the performance measures and performance targets used in assessing the performance of the transportation system in accordance with §450.306(d).	See Chapter 9 for performance measures and targets to analyze four transportation scenarios; Chapter 2 includes a summary of NOACA's past planning efforts.
(f)(4) A system performance report and subsequent updates evaluating the condition and performance of the transportation system with respect to the performance targets described in § 450.306(d), including (i) Progress achieved by the metropolitan planning organization in meeting the performance targets in comparison with system	See Chapter 9 for a full presentation of the future transportation scenarios.

performance recorded in previous reports, including baseline data; and (ii) For metropolitan planning organizations that voluntarily elect to develop multiple scenarios, an analysis of how the preferred scenario has improved the conditions and performance of the transportation system and how changes in local policies and investments have impacted the costs necessary to achieve the identified performance targets.	
(f)(5) Operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods;	See Chapter 11 for the fiscally constrained plan (other recommendations and actions in Chapters 5-8).
(f)(6) Consideration of the results of the congestion management process in TMAs that meet the requirements of this subpart, including the identification of SOV projects that result from a congestion management process in TMAs that are nonattainment for ozone or carbon monoxide.	See Chapter 11 for the Congestion Management Plan as part of the fiscally constrained plan and its projects.
(f)(7) Assessment of capital investment and other strategies to preserve the existing and projected future metropolitan transportation infrastructure, provide for multimodal capacity increases based on regional priorities and needs, and reduce the vulnerability of the existing transportation infrastructure to natural disasters. The metropolitan transportation plan may consider projects and strategies that address areas or corridors where current or projected congestion threatens the efficient functioning of key elements of the metropolitan area's transportation system.	See Chapters 9, 10, and 11.
(f)(8) Transportation and transit enhancement activities, including consideration of the role that intercity buses may play in reducing congestion, pollution, and energy consumption in a cost-effective manner and strategies and investments that preserve and enhance intercity bus systems, including systems that are privately owned and operated, and including transportation alternatives, as defined in 23 U.S.C. 101(a), and associated transit improvements, as described in 49 U.S.C. 5302(a), as appropriate;	See Chapters 9, 10, and 11.
(f)(9) Design concept and design scope descriptions of all existing and proposed transportation facilities in sufficient detail, regardless of funding source, in nonattainment and maintenance areas for conformity determinations under the EPA's transportation conformity regulations (40 CFR part 93, subpart A). In all areas (regardless of air quality	See Chapters 10 and 11.

designation), all proposed improvements shall be described in sufficient detail to develop cost estimates;	
(f)(10) A discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the metropolitan transportation plan. The discussion may focus on policies, programs, or strategies, rather than at the project level. The MPO shall develop the discussion in consultation with applicable Federal, State, and Tribal land management, wildlife, and regulatory agencies. The MPO may establish reasonable timeframes for performing this consultation;	See Chapter 8.
(f)(11) A financial plan that demonstrates how the adopted transportation plan can be implemented. (i) For purposes of transportation system operations and maintenance, the financial plan shall contain system-level estimates of costs and revenue sources that are reasonably expected to be available to adequately operate and maintain the Federal-aid highways (as defined by 23 U.S.C. 101(a)(5)) and public transportation (as defined by title 49 U.S.C. Chapter 53).	See Chapter 10.
(f)(11)(ii) For the purpose of developing the metropolitan transportation plan, the MPO(s), public transportation operator(s), and State shall cooperatively develop estimates of funds that will be available to support metropolitan transportation plan implementation, as required under §450.314(a). All necessary financial resources from public and private sources that are reasonably expected to be made available to carry out the transportation plan shall be identified.	See Chapter 10.
(f)(11)(iii) The financial plan shall include recommendations on any additional financing strategies to fund projects and programs included in the metropolitan transportation plan. In the case of new funding sources, strategies for ensuring their availability shall be identified. The financial plan may include an assessment of the appropriateness of innovative finance techniques (for example, tolling, pricing, bonding, public private partnerships, or other strategies) as revenue sources for projects in the plan.	See Chapter 10.
	See Chapter 10.

(f)(11)(iv) In developing the financial plan, the MPO shall take into account all projects and strategies proposed for funding under title 23 U.S.C., title 49 U.S.C. Chapter 53 or with other Federal funds; State assistance; local sources; and private participation. Revenue and cost estimates that support the metropolitan transportation plan must use an inflation rate(s) to reflect "year of expenditure dollars," based on reasonable financial principles and information, developed cooperatively by the MPO, State(s), and public transportation operator(s).	
(f)(11)(v) For the outer years of the metropolitan transportation plan (i.e., beyond the first 10 years), the financial plan may reflect aggregate cost ranges/cost bands, as long as the future funding source(s) is reasonably expected to be available to support the projected cost ranges/cost bands.	See Chapter 10.
(f)(11)(vi) For nonattainment and maintenance areas, the financial plan shall address the specific financial strategies required to ensure the implementation of TCMs in the applicable SIP.	See Chapter 10.
(f)(11)(vii) For illustrative purposes, the financial plan may include additional projects that would be included in the adopted transportation plan if additional resources beyond those identified in the financial plan were to become available.	See Chapters 10 and 11.
(f)(11)(viii) In cases that the FHWA and the FTA find a metropolitan transportation plan to be fiscally constrained and a revenue source is subsequently removed or substantially reduced (i.e., by legislative or administrative actions), the FHWA and the FTA will not withdraw the original determination of fiscal constraint; however, in such cases, the FHWA and the FTA will not act on an updated or amended metropolitan transportation plan that does not reflect the changed revenue situation.	See Chapter 10.
(f)(12) Pedestrian walkway and bicycle transportation facilities in accordance with 23 U.S.C. 217(g).	See Chapter 3 for existing infrastructure, Chapter 9 for possible infrastructure scenarios, Chapter 10 for possible projects and the financial plan, and Chapter 11 for the *eNEO2050* final plan.
(g) The MPO shall consult, as appropriate, with State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation concerning the development of the transportation plan. The consultation shall involve, as	See Chapter 8.

appropriate: (1) Comparison of transportation plans with State conservation plans or maps, if available; or (2) Comparison of transportation plans to inventories of natural or historic resources, if available.	
(h) The metropolitan transportation plan should integrate the priorities, goals, countermeasures, strategies, or projects for the metropolitan planning area contained in the HSIP, including the SHSP required under 23 U.S.C. 148, the Public Transportation Agency Safety Plan required under 49 U.S.C. 5329(d), or an Interim Agency Safety Plan in accordance with 49 CFR part 659, as in effect until completion of the Public Transportation Agency Safety Plan, and may incorporate or reference applicable emergency relief and disaster preparedness plans and strategies and policies that support homeland security, as appropriate, to safeguard the personal security of all motorized and non-motorized users.	See Chapter 9.
(i) An MPO may, while fitting the needs and complexity of its community, voluntarily elect to develop multiple scenarios for consideration as part of the development of the metropolitan transportation plan. (1) An MPO that chooses to develop multiple scenarios under this paragraph (i) is encouraged to consider: (i) Potential regional investment strategies for the planning horizon;	See Chapter 9.
(i)(1)(ii) Assumed distribution of population and employment;	See Chapter 9.
(i)(1)(iii) A scenario that, to the maximum extent practicable, maintains baseline conditions for the performance areas identified in §450.306(d) and measures established under 23 CFR part 490;	See Chapter 9.
(i)(1)(iv) A scenario that improves the baseline conditions for as many of the performance measures identified in §450.306(d) as possible;	See Chapter 9.
(i)(1)(v) Revenue constrained scenarios based on the total revenues expected to be available over the forecast period of the plan; and	See Chapters 9, 10, and 11.
(i)(1)(vi) Estimated costs and potential revenues available to support each scenario.	See Chapters 9, 10, and 11.
	See Chapter 9.

(i)(2) In addition to the performance areas identified in 23 U.S.C. 150(c), 49 U.S.C. 5326(c), and 5329(d), and the measures established under 23 CFR part 490, MPOs may evaluate scenarios developed under this paragraph using locally developed measures.	
(j) The MPO shall provide individuals, affected public agencies, representatives of public transportation employees, public ports, freight shippers, providers of freight transportation services, private providers of transportation (including intercity bus operators, employer-based commuting programs, such as carpool program, vanpool program, transit benefit program, parking cashout program, shuttle program, or telework program), representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, and other interested parties with a reasonable opportunity to comment on the transportation plan using the participation plan developed under §450.316(a).	See Chapter 4.
(k) The MPO shall publish or otherwise make readily available the metropolitan transportation plan for public review, including (to the maximum extent practicable) in electronically accessible formats and means, such as the World Wide Web.	See Chapter 4.
(l) A State or MPO is not required to select any project from the illustrative list of additional projects included in the financial plan under paragraph (f)(11) of this section.	See Chapters 10 and 11.
(m) In nonattainment and maintenance areas for transportation-related pollutants, the MPO, as well as the FHWA and the FTA, must make a conformity determination on any updated or amended transportation plan in accordance with the Clean Air Act and the EPA transportation conformity regulations (40 CFR part 93, subpart A). A 12-month conformity lapse grace period will be implemented when an area misses an applicable deadline, in accordance with the Clean Air Act and the transportation conformity regulations (40 CFR part 93, subpart A). At the end of this 12-month grace period, the existing conformity determination will lapse. During a conformity lapse, MPOs can prepare an interim metropolitan transportation plan as a basis for advancing projects that are eligible to proceed under a conformity lapse. An interim metropolitan transportation plan consisting of eligible projects from, or consistent with, the	See Chapters 9, 10, and 11.

most recent conforming transportation plan and TIP may proceed immediately without revisiting the requirements of this section, subject to interagency consultation defined in 40 CFR part 93, subpart A. An interim metropolitan transportation plan containing eligible projects that are not from, or consistent with, the most recent conforming transportation plan and TIP must meet all the requirements of this section.	

Vision, Goals and Objectives

State and Regional Goals and Objectives

The vision, goals, and objectives for *eNEO2050* incorporate and build upon those from the region's previous planning efforts over the past decade: *Vibrant NEO 2040* (2014),[3] *Going Forward, Together* (2015),[4] and *Aim Forward 2040* (2017).[5] While Chapter 2 will provide more comprehensive details about the history of these efforts, it is critical to present their goals, objectives, recommendations, and strategies in an integrated way to help the reader understand common elements and relationships among previous and current goals.

eNEO2050 advances the achievement of NOACA's vision, which incorporates the five goals of *Going Forward, Together*, NOACA's current regional strategic plan:

> ***NOACA will STRENGTHEN regional cohesion, PRESERVE existing infrastructure, and BUILD a sustainable multimodal transportation system to SUPPORT economic development and ENHANCE quality of life in Northeast Ohio.***

In 2020, the Ohio Department of Transportation (ODOT) produced *Access Ohio 2045* (AO45),[6] the state's vision for Ohio's transportation systems. AO45 also identifies strategies and initiatives to guide, inform, and support long-term transportation investments for the next 25 years. This plan helps ODOT fulfill its mission to provide safe and easy movement of people and goods, while the agency prepares for future changes within transportation.

NOACA developed a set of 15 long-range transportation plan (LRTP) goals for *eNEO2050*; Table 1-2 illustrates how NOACA's LRTP goals relate to the ODOT's AO45 goals.

---

[3] Northeast Ohio Sustainable Communities Consortium (NEOSCC), 2014. Vibrant NEO 2040 (accessed 4.12.2021 from https://vibrantneo.org/vibrantneo-2040/).
[4] Northeast Ohio Areawide Coordinating Agency (NOACA), 2015. Going Forward, Together (accessed 4.12.2021 from https://www.noaca.org/regional-planning/major-planning-documents/regional-strategic-plan).
[5] NOACA, 2017. Aim Forward 2040 (accessed 4.12.2021 from https://www.noaca.org/regional-planning/major-planning-documents/aim-forward-2040).
[6] Ohio Department of Transportation (ODOT), 2020. Access Ohio 2045 (accessed 4.12.2021 from https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/access-ohio-2045/access-ohio-2045#page=1).

Table 1-2. Relationship between Access Ohio 2045 Goals and *eNEO2050* Long Range Transportation Plan Goals

	eNEO2050 Long Range Transportation Plan Goals														
Access Ohio 2045 Goals	**Enhance Multimodal Transportation System**	**Transit Access Improvement**	**Transit Travel Time Reduction**	**Increase Average Vehicle Occupancy**	**Highway Capacity Improvement**	**Highway Travel Time Reduction**	**Air Quality Improvement**	**Pavement & Bridge Preservation**	**Safety Improvement**	**Congestion Mitigation**	**Arterial Street System Restoration**	**Non-Traditional & Emerging Transportation Technology**	**Enhance Equity in Transportation**	**Economic Competiveness**	**Improve Quality of Life**
Safety								x	x		x	x		x	x
Preservation							x	x			x			x	x
Efficiency and Reliability	x		x	x	x	x		x	x	x	x	x		x	x
Mobility and Accessibility	x	x	x	x	x	x		x		x		x	x	x	x
Economic Competitiveness	x	x	x	x	x	x		x	x	x	x	x	x	x	x
Quality of Life	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Environmental Stewardship	x	x	x	x			x					x		x	x

NOACA also coordinated *eNEO2050's* LRTP goals with the recommendations and strategies of *Vibrant NEO 2040* and the goals and objectives of *Going Forward, Together*.[7] Table 1-3 is a matrix that illustrates not only the interconnections between the *Vibrant NEO 2040* and *Going Forward, Together* recommendations and goals, but also their relationships with the current LRTP goals. In Table 1-3, the column headers and subheaders are the *Vibrant NEO 2040* recommendations and strategies, respectively. The row headers and subheaders are the *Going Forward, Together* goals and objectives, respectively. NOACA color-coordinated these headers and subheaders to identify whether they pertained to one area of expanded scope in *eNEO2050*: economic development, equity, housing, and land use. Each cell in the matrix represents a potential intersection of the goals from each of these previous plans. NOACA staff entered *eNEO2050* LRTP goals in the appropriate cells to illustrate how the goals from previous plans related to the *eNEO2050* LRTP goals. The LRTP goals will also inform the performance measures and targets used to assess the future transportation scenarios introduced in Chapter 3 and detailed extensively in Chapter 9.

The key take-away for the reader is that NOACA's planning efforts are connected to one another and to the State of Ohio's efforts, yet NOACA continues to strive for constant improvement in its planning process.

[7] *Aim Forward 2040*, the current NOACA long-range plan, used the regional strategic plan's goals and objectives as its framework.

Table 1-3. Relationship between *Vibrant NEO 2040*; *Going Forward, Together*; and *eNEO2050* LRTP Goals and Objectives

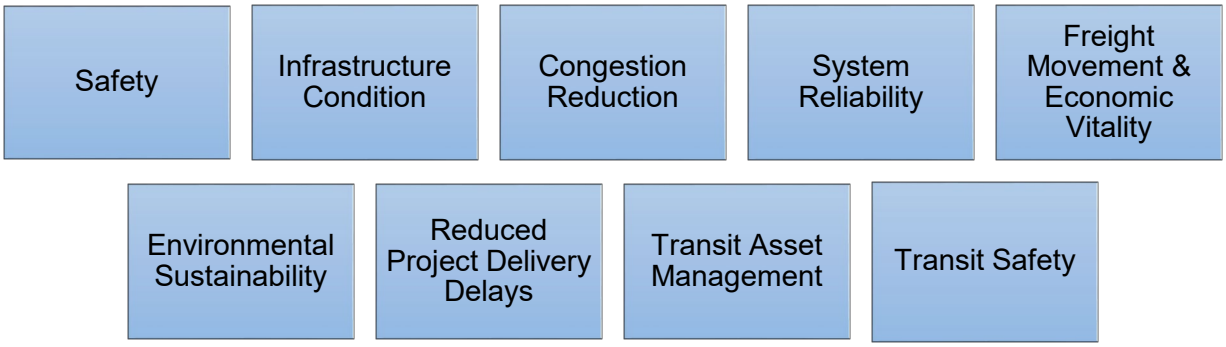
NOACA REGIONAL STRATEGIC PLAN (2015)		VIBRANT NEO 2040 (2014) (FULL RELATIONSHIP IN RECOMMENDATIONS MATRIX (p. 123))									
	ECONOMIC DEVELOPMENT; EQUITY; HOUSING; LAND USE	PROMOTE INVESTMENT IN OUR ESTABLISHED COMMUNITIES	ENHANCE OUR REGIONAL TRANSPORTATION NETWORK ("Transportation Tech"); DEVELOP OUR REGIONAL ECONOMY WITH ACCESSIBLE EMPLOYMENT OPPORTUNITIES	DEVELOP OUR REGIONAL ECONOMY WITH ACCESSIBLE EMPLOYMENT OPPORTUNITIES	DEVELOP OUR REGIONAL ECONOMY WITH ACCESSIBLE EMPLOYMENT OPPORTUNITIES	ENHANCE OUR REGIONAL TRANSPORTATION NETWORK ("Transportation Tech")	ENHANCE OUR REGIONAL TRANSPORTATION NETWORK ("Transportation Tech")	PROTECT OUR SOIL, WATER, AIR AND ECOLOGICALLY SENSITIVE AREAS; EXPAND OUR PARKS AND OPEN SPACE NETWORK	PRESERVE AND VALUE OUR PRIME FARMLAND AS A REGIONAL ECONOMIC ASSET	IMPROVE OUR REGIONAL FISCAL HEALTH	CULTIVATE AND CELEBRATE OUR LOCAL ASSETS AND PLACES OF PUBLIC VALUE
GOALS ("Enhance Equity in Transportation")	OBJECTIVES	1. Focus new residential and commercial development on sites within established communities	2. Develop a robust network of regional job centers connected by multimodal transportation corridors between and within counties	3. Pursue the remediation, assembly, marketing, and redevelopment of abandoned properties at both the local and regional levels	4. Encourage a higher frequency of mixed-use development and a range of diverse, affordable housing options	5. Enhance and coordinate the region's rail and bus services	6. Enhance walking and cycling as transportation options to increase regional mobility and improve public health	7. Preserve our natural areas for future generations, provide outdoor recreation opportunities, and develop a regional approach to protecting air, water, and soil quality	8. Support sustainable agriculture and the local food system in Northeast Ohio	9. Increase collaboration among the region's government agencies to expand information sharing and find more cost-effective means of providing essential services	(Generally supports a regional approach to protect local assets and places of public value through land use and environmental planning)
STRENGTHEN REGIONAL COHESION	Foster collaboration on issues of transportation, air and water quality that will lead to greater regional cohesion on other regional issues.	Air Quality Improvement; Pavement and Bridge Preservation; Arterial Street System Restoration	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Air Quality Improvement; Pavement and Bridge Preservation; Arterial Street System Restoration	Air Quality Improvement	Air Quality Improvement	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Transportation Tech	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Air Quality Improvement	Air Quality Improvement	Improve Quality of Life	Improve Quality of Life; Economic Competitiveness; Pavement and Bridge Restoration; Arterial Street System Restoration	Improve Quality of Life
	Work with governments in the region as well as state and federal authorities to remove barriers to joint development or maintenance of infrastructure.	Pavement and Bridge Preservation; Arterial Street System Restoration	Pavement and Bridge Preservation; Arterial Street System Restoration							Pavement and Bridge Restoration; Arterial Street System Restoration	
	Work with governments in the region as well as state and federal authorities to promote cost sharing, purchasing coordination and consolidation of services.									Economic Competitiveness	
	Facilitate and promote the sharing of best practices for regional collaboration and cost sharing.								Economic Competitiveness	Economic Competitiveness	
	Ensure infrastructure investments are planned and implemented to maximize transportation benefits across all impacted communities.	Transit Access Improvement	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation; Transportation Tech			Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation; Transportation Tech	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation			Enhance Multimodal Transportation System; Transit Access Improvement; Highway Capacity Improvement; Pavement and Bridge Restoration; Arterial Street System Restoration	
	Promote infrastructure investments that enhance the inter-relationships of communities within the region.	Air Quality Improvement	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Air Quality Improvement; Congestion Mitigation; Transportation Tech	Air Quality Improvement	Air Quality Improvement	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Air Quality Improvement; Congestion Mitigation; Transportation Tech	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Air Quality Improvement; Congestion Mitigation	Air Quality Improvement	Improve Quality of Life; Economic Competitiveness	Enhance Multimodal Transportation System; Transit Access Improvement; Highway Capacity Improvement; Transit Travel Time Reduction; Highway Travel Time Reduction	
PRESERVE EXISTING INFRASTRUCTURE	Preserve or maintain existing infrastructure that serves currently developed areas of the region.	Air Quality Improvement; Pavement and Bridge Preservation; Arterial Street System Restoration	Air Quality Improvement; Pavement and Bridge Preservation; Arterial Street System Restoration	Air Quality Improvement	Air Quality Improvement		Air Quality Improvement	Air Quality Improvement	Improve Quality of Life	Pavement and Bridge Restoration; Arterial Street System Restoration	
	Facilitate improvements that connect existing activity centers and reinvigorate existing communities	Increase Average Vehicle Occupancy; Pavement and Bridge Preservation; Arterial Street System Restoration	Pavement and Bridge Preservation; Congestion Mitigation; Arterial Street System Restoration		Increase Average Vehicle Occupancy	Congestion Mitigation	Congestion Mitigation		Economic Competitiveness	Enhance Multimodal Transportation System; Transit Access Improvement; Highway Capacity Improvement; Transit Travel Time Reduction; Highway Travel Time Reduction	
	Facilitate development in higher density areas.	Air Quality Improvement	Air Quality Improvement; Congestion Mitigation	Air Quality Improvement	Air Quality Improvement	Congestion Mitigation	Air Quality Improvement; Congestion Mitigation	Air Quality Improvement	Economic Competitiveness		Improve Quality of Life
	Promote environmental sustainability.	Increase Average Vehicle Occupancy; Air Quality Improvement	Air Quality Improvement	Air Quality Improvement	Increase Average Vehicle Occupancy; Air Quality Improvement		Air Quality Improvement	Air Quality Improvement	Improve Quality of Life		Improve Quality of Life
	Devote approximately 95% of the region's transportation and infrastructure funding to maintain and preserve existing investments.	Increase Average Vehicle Occupancy; Pavement and Bridge Preservation; Arterial Street System Restoration	Pavement and Bridge Preservation; Arterial Street System Restoration		Increase Average Vehicle Occupancy					Economic Competitiveness; Pavement and Bridge Restoration; Arterial Street System Restoration	
	Monitor the condition of existing regional transportation assets and evaluate social equity/environmental justice impacts of investments.	Air Quality Improvement; Pavement and Bridge Preservation; Arterial Street System Restoration	Air Quality Improvement; Pavement and Bridge Preservation; Arterial Street System Restoration	Air Quality Improvement	Air Quality Improvement		Air Quality Improvement	Air Quality Improvement		Enhance Equity in Transportation; Enhance Multimodal Transportation System; Pavement and Bridge Restoration; Arterial Street System Restoration	
	Conduct benefit-cost analyses of all projects to insure that life-cycle costs and regional fiscal sustainability are considered.									Economic Competitiveness; Improve Quality of Life	
BUILD SUSTAINABLE MULTIMODAL TRANSPORTATION SYSTEM	Enhance and improve coordination for public transit, rail, pedestrian and bicycle transportation		Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation			Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation			Enhance Multimodal Transportation System	
	Improve access to regional job centers, employment opportunities, and city centers	Increase Average Vehicle Occupancy	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation		Increase Average Vehicle Occupancy	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation			Transit Travel Time Reduction; Highway Travel Time Reduction	
	Facilitate intermodal transportation connections		Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction			Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction			Enhance Multimodal Transportation System	
	Reduce energy use and improve air quality	Increase Average Vehicle Occupancy; Air Quality Improvement	Air Quality Improvement; Congestion Mitigation	Air Quality Improvement	Increase Average Vehicle Occupancy	Congestion Mitigation	Air Quality Improvement; Congestion Mitigation	Air Quality Improvement		Improve Quality of Life	Improve Quality of Life
	Reduce greenhouse gas emissions	Increase Average Vehicle Occupancy; Air Quality Improvement	Air Quality Improvement; Congestion Mitigation	Air Quality Improvement	Increase Average Vehicle Occupancy	Congestion Mitigation	Air Quality Improvement; Congestion Mitigation	Air Quality Improvement		Improve Quality of Life	
	Reduce reliance on auto travel	Increase Average Vehicle Occupancy	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation		Increase Average Vehicle Occupancy	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation			Enhance Multimodal Transportation System	
	Demonstrate an adequate long-term funding stream for operation and maintenance.	Pavement and Bridge Preservation; Arterial Street System Restoration	Pavement and Bridge Preservation; Arterial Street System Restoration							Economic Competitiveness; Enhance Multimodal Transportation System; Pavement and Bridge Restoration; Arterial Street System Restoration	
	Integrate the control of stormwater, protection and improvement of water quality, and control of development in floodplains										Improve Quality of Life
	Ensure and enhance safety		Safety Improvement; Pavement and Bridge Preservation; Arterial Street System Restoration		Safety Improvement	Safety Improvement	Safety Improvement			Safety Improvement	
	Assure the Regional Transportation Plan and TIP reflect commitment to a balanced multi-modal system and NOACA's vision.		Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction			Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction				
	Encourage TOD in higher density urban corridors and other higher density areas and retrofit TO elements in appropriate lower density areas.		Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation			Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation				
	Consider strategic abandonment or alternative provision of service for infrastructure elements if underutilized or whose costs exceed benefit.										
	Achieve levels of infrastructure investment that do not exceed the region's financial capacity.									Economic Competitiveness; Improve Quality of Life	
SUPPORT ECONOMIC DEVELOPMENT ("Economic Competitiveness")	Provide for the movement of goods essential to the economic viability of the region	Highway Travel Time Reduction; Pavement and Bridge Preservation; Arterial Street System Restoration	Pavement and Bridge Preservation; Congestion Mitigation; Arterial Street System Restoration	Highway Travel Time Reduction	Highway Travel Time Reduction	Congestion Mitigation	Congestion Mitigation		Economic Competitiveness	Economic Competitiveness; Transit Travel Time Reduction; Highway Travel Time Reduction	
	Are consistent with state, regional and local economic development priorities, policies and strategies.									Economic Competitiveness; Improve Quality of Life	
	Support retention and expansion of Northeast Ohio businesses in areas with existing infrastructure and attract new businesses to Northeast Ohio.	Highway Travel Time Reduction; Pavement and Bridge Preservation; Arterial Street System Restoration	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Pavement and Bridge Preservation; Arterial Street System Restoration	Highway Travel Time Reduction	Highway Travel Time Reduction	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction				Economic Competitiveness; Improve Quality of Life	
	Support development of NEO manufacturing base, health care system, and other areas of economic strength and economic development focus.	Highway Travel Time Reduction	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction	Highway Travel Time Reduction	Highway Travel Time Reduction	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction				Economic Competitiveness; Improve Quality of Life	
	Ensure NOACA's Board includes representatives of business, medicine, higher education, non-profit (Community and Business Advisory Councils).									Economic Competitiveness; Improve Quality of Life	
	Study and identify ways NOACA can direct investments and actions to create realistic opportunities (job retention and economic development).									Economic Competitiveness; Improve Quality of Life	
	Promote regional cooperation in the areas of economic development and job retention.	Highway Travel Time Reduction	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction	Highway Travel Time Reduction	Highway Travel Time Reduction	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction				Economic Competitiveness; Improve Quality of Life	
	Direct investments and actions to create realistic opportunities for job retention and economic development.	Highway Travel Time Reduction	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction	Highway Travel Time Reduction	Highway Travel Time Reduction	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction				Economic Competitiveness; Improve Quality of Life	
ENHANCE QUALITY OF LIFE ("Improve Quality of Life")	Promote the redevelopment of declining and abandoned areas	Pavement and Bridge Preservation; Arterial Street System Restoration	Pavement and Bridge Preservation; Arterial Street System Restoration							Pavement and Bridge Restoration; Arterial Street System Restoration	
	Provide improved access to primary and secondary schools, colleges, universities and other educational opportunities	Highway Travel Time Reduction; Pavement and Bridge Preservation; Arterial Street System Restoration	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Pavement and Bridge Preservation; Congestion Mitigation; Arterial Street System Restoration	Highway Travel Time Reduction	Highway Travel Time Reduction	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation	Enhance Multimodal Transportation System; Transit Access Improvement; Transit Travel Time Reduction; Congestion Mitigation				
	Enhance the public's access to and enjoyment of the region's parks, cultural assets and recreational activities	Pavement and Bridge Preservation; Arterial Street System Restoration	Pavement and Bridge Preservation; Congestion Mitigation; Arterial Street System Restoration			Congestion Mitigation	Enhance Multimodal Transportation System; Congestion Mitigation				
	Preserve agricultural lands, open space and important habitat areas, woodlands, and wetlands								Improve Quality of Life; Economic Competitiveness		Improve Quality of Life
	Promote healthy and active living	Air Quality Improvement	Air Quality Improvement	Air Quality Improvement	Air Quality Improvement		Enhance Multimodal Transportation System; Air Quality Improvement	Air Quality Improvement			Improve Quality of Life
	Make prudent and necessary infrastructure improvements to minimize the economic burden of transportation investments on the region's taxpayers	Pavement and Bridge Preservation; Arterial Street System Restoration	Pavement and Bridge Preservation; Arterial Street System Restoration							Economic Competitiveness; Improve Quality of Life	
	Ensure that safety factors are considered in the development of regional infrastructure.	Pavement and Bridge Preservation; Arterial Street System Restoration	Pavement and Bridge Preservation; Safety Improvement; Arterial Street System Restoration		Safety Improvement	Safety Improvement	Safety Improvement			Safety Improvement	

Performance Measures and Targets

The MAP-21 and subsequent FAST Transportation Acts emphasized the incorporation of performance management principles into the transportation planning and programming processes. In response, the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) established national performance goals and targets and required states, MPO's and public transit agencies to establish their own performance targets in support of the national goals.

Programmed projects within the NOACA TIP and Ohio STIP address transportation needs in one or more of these key areas below:

Figure 1-1. NOACA Key Transportation Project Areas



In June 2018, the Northeast Ohio Areawide Coordinating Agency's Board of Directors approved Resolution 2018-016 entering into a Memorandum of Understanding, with the Ohio Department of Transportation (ODOT) and the Cleveland UZA's Public Transit providers. The Agreement directs the development, design, and implementation of standard procedures of operations and coordination of efforts and responsibilities between the parties regarding the federal transportation performance management based planning process.

Since then, the NOACA Board of Directors has approved the adoption of performance measures and applicable targets for inclusion in the NOACA long-range transportation plan and Transportation Improvement Program (TIP). These performance measures include:

1. Infrastructure Condition - Pavement and Bridge
2. Congestion Mitigation and Air Quality (CMAQ)
    a. Peak-hour Excessive Delay
    b. Non Single Occupancy Vehicle
    c. Mobile Emissions Reduction
3. System Reliability
4. Freight Movement & Economic Vitality
5. Transit Asset Management
6. Transit Safety

The section demonstrates that projects selected for funding and programmed in the NOACA 2021-2024 TIP advance Ohio and NOACA adopted performance targets, advancing federally established transportation performance measures.

Safety Performance Measures and Targets

Federal Rule 23 CFR 490 required states to establish five highway safety performance targets for those measures to demonstrate. In 2016 ODOT identified five statewide safety baselines through analysis of crash data in its Public Safety Crash Report System.

In accordance with federal legislation, Ohio used five-year rolling averages to calculate historic crash trends and identify statewide reduction targets. After reviewing historical crash trends, external factors, and through consultation with NOACA, ODOT adopted targets based on a 1 percent annual reduction across all five measures.

Safety Performance Management (Safety PM) is a part of the overall Transportation Performance Management (TPM) program, which FHWA defines as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals. The Safety PM Final Rule supports the Highway Safety Improvement Program (HSIP), as it establishes safety performance measure requirements for the purpose of carrying out the HSIP and to assess fatalities and serious injuries on all public roads.

The Safety PM Final Rule establishes five performance measures as the five-year rolling averages to include:

1. Number of fatalities
2. Rate of fatalities per 100 million vehicle miles traveled (VMT)
3. Number of serious injuries
4. Rate of serious injuries per 100 million VMT
5. Number of non-motorized fatalities and non-motorized serious injuries

The Safety PM Final Rule also instituted the process for ODOT and NOACA to establish and report their safety targets, and the process that FHWA will use to assess whether ODOT and NOACA have met or made significant progress toward meeting their safety targets.

After reviewing historical crash trends and external factors, ODOT and ODPS adopted a 2% percent annual reduction target across all five categories. This represents a more aggressive target based on the Governor's commitment and focus on safety. This includes several new initiatives, which are being launched this year:

- Additional $100 Million Annually for ODOT's Highway Safety Program
    - This includes the Governor's Intersection Safety Program targeting the top urban, rural and suburban intersections in our state.
    - Ohio now has the third largest Highway Safety Program in the country.
- Statewide Implementation of Centerline Rumble Stripes
    - ODOT is targeting more than 4,000 miles of high-speed, two-lane roads.
    - There are about 120 left of center deaths each year.
- ODPS Young Driver and Driver Training Initiatives
    - The department is launching new programs to reduce crashes among young adults age 15-25.

    - Young adults are involved in 28% of all traffic deaths and 35% of all serious injuries across Ohio each year.
- New $10M Pedestrian Safety Improvement Program, which will provide 8 Ohio cities with funding to implement proven safety counter measures such as medians, signals, marked crossings and related infrastructure.

ODOT believes these initiatives will have a significant effect on reducing crashes in Ohio.

The ODOT 2% annual reduction rate reflects a more aggressive approach toward reducing crashes, consistent with the 2% reductions recommended for emphasis areas in NOACA's recently adopted SAVE Plan (November 2019). Therefore, NOACA has adopted ODOT's target of a 2% reduction for calendar year 2020 to support state targets for safety performance (NOACA Board of Directors Resolution 2019-060).

For comparison, the previous goal was a 1% annual reduction target for all five categories. Last year, two of the five targets were met.

Infrastructure Condition – Pavement Performance Measures and Targets

Federal Rule 23 CFR 490.307(a) (1-4) established four highway performance measures designed to provide information for the National Highway Performance Program (NHPP) on the condition, or state of good repair, of the area's road and bridges in support of the National Highway System (NHS).

In accordance with Section V of the Agreement, Pavement and Bridge Condition included within the agreement between the ODOT and NOACA, it was agreed that pavement condition would be analyzed using the Highway Performance Monitoring System (HPMS).

The four Pavement Performance Measures below include the performance measure baselines, ODOT's two and four year targets, and NOACA's 2 and 4 year targets (Table 1-4). The measures are:

1. Percentage of interstate pavement in good condition;
2. Percentage of interstate pavement in port condition;
3. Percentage of non-interstate NHS pavement in good condition; and
4. Percentage of non-interstate NHS pavement in poor condition.

Table 1-4. Pavement Performance Measures

Pavement Performance Measures	Baseline 8-Year Average	ODOT 2-Year Target	ODOT 4-Year Target	NOACA 2-Year Target	NOACA 4-Year Target
% of Interstate Pavement in Good Condition	39%	50%	50%	50%	50%
% of Interstate Pavement in Poor Condition	0.2%	1%	1%	1%	1%
% of Non-Interstate Pavement in Good Condition	21%	35%	35%	35%	35%
% of Non-Interstate Pavement in Poor Condition	2.1%	3%	3%	3%	3%

Infrastructure Condition – Bridges Performance Measures and Targets

Federal Rule 23 CFR 490.407(c)(1-2) established two bridge performance measures designed to provide information for the National Highway Performance Program (NHPP) on the condition of the area's bridges in support of the National Highway System (NHS).

In accordance with Section V of the Agreement, Pavement and Bridge Condition included within the agreement between the ODOT and NOACA, it was agreed that bridge conditions would be analyzed using the National Bridge Inventory (NBI) Database.

The two Bridge Performance Measures below include the performance measure baselines, ODOT's two and four year targets, and NOACA's 2 and 4 year targets (Table 1-5). The two Bridge Performance Measures are:

1. Percentage of NHS bridges classified as good condition; and
2. Percentage of NHS bridges classified as poor condition.

Table 1-5. Bridge Performance Measures

Bridge Performance Measures	Baseline	ODOT 2-Year Target	ODOT 4-Year Target	NOACA 2-Year Target	NOACA 4-Year Target
% of NHS Bridges in Good Condition	49%	50%	50%	50%	50%
% of NHS Bridges in Poor Condition	2.30%	5%	5%	5%	3%

NOACA's SFY 2021 – 2024 TIP was developed to ensure progress toward the accomplishment of the adopted pavement and bridge targets. To that end, NOACA plans and programs projects with a focus on how they contribute toward increasing and maintaining the percentage of pavements on the National Highway System (NHS) in good condition and reducing the percentage of pavement in the NHS in poor condition consistent with the adoption of these performance targets and measures.

The SFY 2021 – 2024 TIP contains 303 projects utilizing $1.1 billion in funding awarded through various pavement and bridge funding programs administered through the NOACA, Counties and ODOT. These investments contribute toward accomplishing the overall improvement of pavement and bridges in the NOACA region, including NHS Interstate and NHS Non-interstate facilities.

Through NOACA's robust transportation asset management planning, NEO 2050 continues to prioritize a state of good repair for pavements and bridges, also consistent with the Board of Directors' policy that 90% of the region's resources be committed to preservation of existing assets. Therefore, NOACA promotes the achievement of performance measures associated with pavements and bridges on the interstate and non-interstate NHS.

System Reliability – Travel Time and Freight Movement Performance Measures and Targets

NOACA's Travel Time Reliability Performance plan for Interstate, Non-Interstate and Freight Movement are based on the performance measures established by 23 CFR 490.507(a)(1-2) and 23 CFR 490.607 (Tables 1-6 and 1-7).

Section VI.A. of the Agreement requires ODOT and NOACA to establish targets for the following two measures:

1. The percent of the person-miles traveled on the Interstate that are reliable (Interstate Time Travel Reliability (TTR 1)); and
2. The percent of the person-miles traveled on the Non-Interstate National Highway System (NHS) that are reliable (Non-Interstate NHS Level of Time Travel Reliability (TTR Non 1)).

Table 1-6. Travel Time Reliability Performance Measures

Travel Time Reliability Performance Measures	NOACA Baseline	ODOT 2-Year Target	ODOT 4-Year Target	NOACA 2-Year Target	NOACA 4-Year Target
Interstate Level of Travel Time Reliability (TTR 1)	91.1% of system LOTTR < 1.50	85% of system LOTTR < 1.50	85% of system LOTTR < 1.50	85% of system LOTTR < 1.50	85% of system LOTTR < 1.50
Non-Interstate NHS Level of Travel Time Reliability (TTR Non 1)	84.7% of system LOTTR < 1.50	N/A	80% of system LOTTR < 1.50	N/A	80% of system LOTTR < 1.50

Table 1-7. Freight Movement Performance Measures

Freight Movement Performance Measure	NOACA Baseline	ODOT 2-Year Target	ODOT 4-Year Target	NOACA 2-Year Target	NOACA 4-Year Target
Interstate Truck Travel Time Index	TTTR = 1.52	TTTR < 1.50	TTTR < 1.50	TTTR < 1.50	TTTR < 1.50

The eNEO2050 plan was developed to ensure progress toward the accomplishment of the adopted system reliability and freight movement targets. NOACA plans and programs projects with a focus on how they contribute toward improving the level of travel time reliability for person miles travelled on National Highway System (NHS) and freight movement on the interstate system consistent with the adoption of these performance targets and measures.

CMAQ Congestion and Air Quality Performance Measures and Targets

The NOACA Air Quality/CMAQ Performance plan is prepared as a component of the Ohio Department of Transportation (ODOT) statewide CMAQ Performance reports for the initial period in accordance with the requirements of 23 CFR 409.107(c) and 49 USC 149(1) in collaboration with the ODOT, FHWA, and stakeholders within the region. In specific, this section focuses on the performance measures established through the PM3 regulation Subpart G (Measures to

Assess the CMAQ Program – Traffic Congestion) and Subpart H (Measures to Assess the CMAQ Program On-road Mobile Source Emissions).

The national performance measures to assess traffic congestion for the CMAQ program were established in 23 CFR 707 (a-b) and are referred to collectively as the CMAQ Traffic Congestion Measures. They are: (a) Annual Hours of Peak Hour Excessive Delay (PHED) per Person per Year (PHED Measure); and (b) Percent of Non-Single Occupancy Vehicle Travel (Non-SOV). Section VI of the agreement establishes targets for each of the CMAQ Congestion and Air Quality measures.

Table 1-8 shows the baseline and four-year target peak hours of excessive delay (PHED) per person, per year for the Cleveland urbanized area. The information for this measure was developed from FHWA vehicle occupancy factors, HPMS traffic count data, and the NPMRDS travel time data set.

Table 1-8. Traffic Congestion Measure: Peak Hour Excessive Delay (PHED)

Measure	NOACA Baseline 4-Year Average	ODOT 2-Year Target	ODOT 4-Year Target	NOACA 2-Year Target	NOACA 4-Year Target
Cleveland: Peak Hour Excessive Delay Per Capita	7.4 hours/year	N/A	< 10 hours/year	N/A	< 10 hours/year

Table 1-9 presents the baseline, two-year and four-year targets for Non-Single Occupancy Vehicle travel (Non-SOV) within the Cleveland urbanized area. The information for this metric was developed and analyzed using data from the American Community Survey (Table DP03).

Table 1-9. Traffic Congestion Measure: Non-Single Occupancy Vehicle (Non-SOV) Travel

Measure	NOACA Baseline 4-Year Average	ODOT 2-Year Target	ODOT 4-Year Target	NOACA 2-Year Target	NOACA 4-Year Target
Cleveland: % of Non-SOV Travel	17.90%	≥ 18%	≥ 18.5%	≥ 18%	≥ 18.5%

The following CMAQ On-Road Mobile Source Emissions information included in Table 1-10 shows the on-road baseline, two-year, and four-year quantitative NOACA emissions targets for Volatile Organic Compounds (VOC), Nitrous Oxide (NOx), and Particulate Matter with a diameter of less than 2.5 micrometers (PM2.5). The baseline data was derived from the FHWA Congestion Mitigation and Air Quality (FHWA CMAQ) Public Access Database and aggregated by pollutant type for the years 2014-17. For the two- and four-year targets, the data was derived from current TIP projects with quantified emissions benefits for the years 2018 – 2021, but the 2021-24 projects will contribute toward achieving these targets.

Table 1-10. On Road Mobile Source Emissions

Measures	NOACA Baseline	ODOT 2-Year Target	ODOT 4-Year Target	NOACA 2-Year Target	NOACA 4-Year Target
Volatile Organic Compounds Total Emissions Reduction (VOC kg/day)	4 year average 85.90 kg/day	69 kg/day	69 kg/day	16.16 kg/day	38.56 kg/day
Nitrous Oxide Total Emissions Reduction (NOx kg/day)	4 year average 671.31 kg/day	537 kg/day	537 kg/day	56.71 kg/day	107.17 kg/day
Particulate Matter at 2.5 Micrometers Total Emissions Reduction (PM2.5 kg/day)	4 year average 44.97 kg/day	36 kg/day	36 kg/day	3.96 kg/day	7.58 kg/day

Strategies and projects contained within the eNEO plan place heavy emphasis improving air quality. Through initiatives like our Gohio Commute platform, workforce mobility and accessibility tool, electric vehicle charging station siting, and STOP program, NOACA is aggressively planning to achieve goals related to non-SOV travel and reduction of on road mobile source emissions.

Transit Asset Management Performance Measures and Targets

The MAP-21 Act required the Federal Transit Administration (FTA) to develop rules establishing a systematic process of operating, maintaining, and improving public transit capital assets through their entire life cycle. In response, the FTA published the Transit Asset Management (TAM) system Final Rule, 49 USC 625, designed to monitor and manage public transportation capital assets to:

1. Enhance safety;
2. Reduce maintenance costs;
3. Increase reliability; and
4. Improve performance.

Public transit agencies are required to establish performance targets in support of these national goals and, in turn Metropolitan Planning Organizations (MPOs) to establish regional performance targets encompassing the area's public transit agencies.

The Final TAM Rule, 49 CFR part 625, established the general provisions for public transit TAM plans including performance management requirements, general capital asset categories and their associated asset classes, and the record keeping and reporting requirements for public transit agencies and MPOs. It defined the standards for measuring the condition of public transit capital assets and established four State of Good Repair (SGR) performance measures – the first two age-based, the third condition-based, and the last performance-based. These include:

1. **Rolling Stock/Revenue Fleet**: The percentage of revenue vehicles (by type) at or exceeding the useful life benchmark (ULB). ULB is defined by the FTA as the age at which the vehicles is no longer in a State of Good Repair (SGR).

2. **Equipment**: The percentage of non-revenue or service vehicles (by type) that exceed their ULB.
3. **Facilities**: The percentage of facilities (by group) that are rated less than 3.0 or a SGR on the Transit Economic Requirements Model (TERM).
4. **Infrastructure**: The percentage of track segments (by mode) that have performance restrictions. Track segments are measures to the nearest 0.01 of a mile.

In response, the Northeast Ohio Areawide Coordinating Agency (NOACA), the Ohio Department of Transportation (ODOT) and the region's Tier I and Tier II public transit agencies entered into the previously discussed Memorandum of Understanding referred to as the "Agreement" that defined the mutual responsibilities of each party in meeting their ongoing Transportation Performance Management - TAM Plan and Performance Management requirements.

At present, due to significant differences between the area's large and small urban and rural public transit providers, NOACA adopted Tiered TAM performance targets in March 2019 through Resolution #2019-021. This approach will help to better understand and track improvements in each transit provider's State of Good Repair (SGR) measures and will facilitate the future development of one unified set of TAM performance measure targets for the region (Table 1-11). The four established Transit Agency Tiers along with the associated providers include:

- Tier I – Large Urban Provider: Greater Cleveland Regional Transit Authority
- Tier II – Small Urban Providers: Laketran, Medina County Public Transit, and Lorain County Transit
- Tier II – Rural Provider: Geauga County Transit (Established by the Ohio Department of Transportation
- Tier II – Section 5310 Open Door Sub-Recipients

NOACA will continue to coordinate with all transit providers to ensure timely, realistic targets are established and will monitor their progress towards achieving them in the future.

Table 1-11. Tiered Transit Asset Management (TAM) Performance Targets

TIERED TRANSIT ASSET MANAGEMENT (TAM) PERFORMANCE TARGETS

Tier I (GCRTA) TAM Performance Targets

Asset Category/Class	Sub-Group	Measure	% not to Exceed
Revenue Fleet (Useful Life Benchmark)	Revenue Vehicles	8 - 31 years ULB	15&%
	Bus 60-Ft	12 years ULB	10%
	Bus 40-Ft	12 years ULB	15%
	Trolley	13 years ULB	5%
	Over-the-road Bus	12 years ULB	5%
	Paratransit	8 - 10 years ULB	15%
	Train: Heavy & Light Rail	31 years ULB	25%
Equipment	Heavy Equipment	10 - 25 years ULB	25%
	Non-Revenue Vehicles	8 years ULB	25%
Facilities (State of Good Repair)	Facilities	TERM Rating below 3.0 SGR	10%
	Facility Assets	TERM Rating below 3.0 SGR	10%
Infrastructure	Track, Catenary, Signals, etc.	% of Rail system slow zones	2% during construction season
		% of Rail system slow zones	0.5% at year end

Tier II Urban (Laketran, MCPT, & LCT) TAM Performance Targets

Asset Category/Class	Sub-Group	Measure	% not to Exceed
Revenue Fleet (Useful Life Benchmark)	Revenue Vehicles	8 - 12 years ULB	5%
	Over-the-road Bus	12 years ULB	0%
	Bus - 35/40-Ft	12 years ULB	0%
	Cutaway Bus	5 - 7 years ULB	6%
	Mini-Vans	8 years ULB	0%
	Vans	5 years ULB	17%
Equipment	Non-Revenue/Service Auto	10 years ULB	17%
	Trucks & Rubber Tire Vehicles	8 - 10 years ULB	23%
	Maintenance	10 - 25 years ULB	N/A
	Operations	10 - 25 years ULB	N/A
Facilities (State of Good Repair)	Administration	TERM Rating below 3.0 SGR	0%
	Maintenance	TERM Rating below 3.0 SGR	0%
	Passenger Facilities	TERM Rating below 3.0 SGR	0%
Infrastructure	Track, Catenary, Signals, etc.	N/A	N/A
		N/A	N/A

TIERED TRANSIT ASSET MANAGEMENT (TAM) PERFORMANCE TARGETS

Tier II Rural (Geauga County Transit) TAM Performance Targets

Established by ODOT*

Asset Category/Class	Sub-Group	Measure	% not to Exceed
Revenue Fleet (Useful Life Benchmark)	**Revenue Vehicles**	**8 - 14 years ULB**	**N/A**
	Over-the-road Bus	N/A	N/A
	Bus - 35/40-Ft	14 years ULB	21%
	Cutaway Bus	10 years ULB	2%
	Mini-Vans	10 years ULB	10%
	Vans	8 years ULB	2%
Equipment	Non-Revenue/Service Auto	10 years ULB	0%
	Trucks & Rubber Tire Vehicles	N/A	N/A
	Maintenance	14 years ULB	0%
	Operations	10 years ULB	0%
Facilities (State of Good Repair)	Administration	TERM Rating below 3.0 SGR	38%
	Maintenance	TERM Rating below 3.0 SGR	22%
	Passenger Facilities	TERM Rating below 3.0 SGR	0%
Infrastructure	Track, Catenary, Signals, etc.	N/A	N/A
		N/A	N/A

Tier II Section 5310 Open Door Sub-Recipient Performance Targets

Asset Category/Class	Sub-Group	Measure	% not to Exceed
Revenue Fleet (Useful Life Benchmark)	**Revenue Vehicles**	**8 years ULB**	**45%**
	Over-the-road Bus	12 years ULB	N/A
	Bus - 35/40-Ft	12 years ULB	N/A
	Cutaway Bus	8 - 10 years ULB	N/A
	Mini-Vans	8 years ULB	N/A
	Vans/Automobile	8 years ULB	45%
Equipment	Non-Revenue/Service Auto	N/A	N/A
	Trucks & Rubber Tire Vehicles	N/A	N/A
	Maintenance	N/A	N/A
	Operations	N/A	N/A
Facilities (State of Good Repair)	Administration	TERM Rating below 3.0 SGR	N/A
	Maintenance	TERM Rating below 3.0 SGR	N/A
	Passenger Facilities	TERM Rating below 3.0 SGR	N/A
Infrastructure	Track, Catenary, Signals, etc.	N/A	N/A
		N/A	N/A

Over the four years of the current SFY 2021-2024 TIP over 160 individual public transit agency projects, which can be consolidated into over 40 individual capital improvement programs, for the area's large and small urban transit providers that utilize a combined $489.75 million towards maintaining and improving the State of Good Repair (SGR) of their capital assets in support of the TAM Performance Measures and Targets listed in Table 12.

Transit providers in the NOACA area utilize a variety of funding sources in support of their programmed projects. These awards include, but are not limited to a number of Federal Transit Administration (FTA) grant awards including the Section 5307 Urbanized Formula, Section 5337 State of Good Repair, Section 5339 Bus and Bus Facilities awards, and other FTA competitive discretionary awards, NOACA directed CMAQ funds, the State of Ohio from its Urban Transit Program (UTP) and from the Ohio Transit Preservation Partnership Program (OTPPP), local funds, other competitive discretionary awards, and 100 percent local funds.

In addition, NOACA is the direct recipient of the Cleveland UZA's annual FFY Section 5310 funds and, in turn, allocates a minimum of 60 percent of these funds to public transit agencies and a maximum of 40 percent to various sub-recipients, including local communities and non-profits, in the area through an annual application and evaluation process.

Strategies and projects contained within the eNEO plan continue to prioritize as state of good repair for public transportation assets. NOACA coordinates with the region's transit agencies, and its 5310 providers, in the planning and programming of transit vehicles, non-vehicle capital, and other facilities that maintain efficient and effective levels of service for all that depend on public transportation to access the economy, recreation, shopping, and other aspects for improved quality of life.

Transit Safety Performance Measures and Targets

The FTA published the Public Transportation Agency Safety Plans (PTASP) Final Rule of 49 CFR Part 673 to ensure that public transportation systems are safe nationwide. The current compliance date for transportation systems is December 31, 2020. MPOs are to establish their performance targets within 180 days of receipt of transportation agency

The PTASP builds upon the FTA's April 15, 2016 State Safety Oversight (SSO) final rule which significantly strengthened an SSO Agency's authority to investigate accidents and oversee a rail transit agency's implementation of its safety rule. It required all eligible states to have an FTA approved and certified SSO program by April 15, 2019 and if an eligible state fails to meet the certification deadline by that date, under requirement U.S.C. Chapter 5329 (e) (3) the FTA must withhold all Chapter 53 funds from the entire State. The State of Ohio was one of the first in the nation to have its SSO programmed approved and certified by the FTA to avoid this issue. This program provides Federal support for State oversight of the transit agencies safety plans and, as such, establishes the necessary administrative oversight, support, and reporting structure for the upcoming Transit Safety Performance Measures and Targets.

Established in the final rule, public transportation providers and State Departments of Transportation (DOT) are required to establish safety performance targets (SPTs) to address the safety performance measures (SPMs) identified in the National Public Transportation Safety Plan (49 CFR § 673.11(a)(3)). A safety performance measure is a quantifiable indicator of performance or condition that is used to establish targets related to safety management activities, and to assess progress toward meeting the established targets (§ 673.5). The final rule includes the following performance measures:

1. Fatalities,
2. Injuries,
3. Safety Events, and
4. System Reliability.

A safety performance target is a quantifiable level of performance or condition expressed as a value for the measure related to safety management activities to be achieved within a set time period (§ 673.5). Transit providers may choose to establish additional targets for the purpose of safety performance monitoring and measurement. This requirement excludes transportation systems that only receive Federal financial assistance under 49 U.S.C. Chapter 53 Section 5310 or Section 5311.

The Final Rule requires safety targets be set by each transit provider and requires MPOs to include performance targets in their partner agreements, Transportation Improvement Program (TIP), State-wide Transportation Improvement Program (STIP), and Metropolitan Transportation Plans.

Greater Cleveland Regional Transit Authority, Laketran, Lorain County Transit, and Medina County Public Transit are all required to meet these requirements, and have all provided NOACA with their PTASPs and STPs. Recommended STPs are included in Table 1-12 below and will be approved by the NOACA Board of Directors in June 2021, along with the eNEO2050.

Table 1-12. Recommended NOACA Safety Performance Targets

Safety Performance Targets										
Agency	**Mode**	**TOS**	**Events**		**Fatalities**		**System Reliability**	**Injuries**		
			Total # of Safety Events*	**Rate per Vehicle Revenue Miles**	**Total # of Fatalities***	**Rate per Vehicle Revenue Miles**	**System Reliability** ***(Mean Distance between failure)***	**Total # of Injuries***	**Rate per Vehicle Revenue Miles**	**Occupational Injuries** ***(GCRTA Only)***
Greater Cleveland Regional Transit Authority	HR/LR	DO	10	0.33	1	0.03	3,377 (LR)/ 12,191 (HR)	2	0.06	7 per 200,000 hours worked
Greater Cleveland Regional Transit Authority	MB	DO		1.25						
Laketran	CB	DO	0	0	0	0	14,146	0	0	
Laketran	DR	DO	1	0	0	0	20,741	1	0	
Laketran	MB	DO	1	0	0	0	7,243	1	0	
Lorain County Transit	DR	PT	0	0	0	0	0*	0	0	
Lorain County Transit	MB	PT	0	0	0	0	0*	1	0	
Medina County Public Transit	DR	DO	20	0.23	0	0	35,889	10	0.11	
Medina County Public Transit	MB	DO	6	0.12	0	0	8,263	2	0.04	

Rounded to the nearest whole number

System Performance Report

Federal regulations require that the metropolitan transportation planning process shall provide for the establishment and use of a performance-based approach to transportation decision-making to support the national goals described in 23 U.S.C. 150(b) and the general purposes described in 49 U.S.C. 5301(c).The section above provides a detailed description of the established performance measures and performance targets used in assessing the performance of the transportation system in accordance with § 450.306(d).

Federal regulations also require the development and incorporation of a system performance report evaluating the condition and performance of the transportation system with respect to the performance targets.

ODOT, in coordination with NOACA and other statewide MPOs, have developed the system performance report contained within Appendix 1-1. This report contains the progress that NOACA and its partners have made in achieving the described performance measures and targets during the first 2-yaer reporting period.

Metropolitan planning organizations that voluntarily elect to develop multiple scenarios, as NOACA has done in the development of eNEO2050, the plan must include analysis of how the preferred scenario has improved the conditions and performance of the transportation system and how changes in local policies and investments have impacted the costs necessary to achieve the identified performance targets.

The eNEO2050 plan comprehensively addresses this requirement, demonstrating the potential regional investment strategies for the planning horizon; assumed distribution of population and employment; and demonstrated maintenance of baseline conditions for the performance areas identified in § 450.306(d) and measures established under 23 CFR part 490.

Recommendations and Implementation Actions

While the goals help frame the potential future for Northeast Ohio, specific recommendations and implementation actions will help the region actually achieve it. Chapter 11 provides the *eNEO2050* Final Plan, with its associated projects based on fiscal constraint. Chapters 5-8 provide details about the steps NOACA can take to support this Final Plan to realize a more equitable future across the spheres of transportation, economic development, employment, housing, environmental quality, climate change, and health. NOACA vetted its proposed recommendations and implementation actions through the NOACA Board's Policy Committee, which made the development of new policies to support *eNEO2050* one of its principal focus areas for the current year. In addition, a new Equity Subcommittee of the Policy Committee has been established to advise on equity issues related to NOACA's transportation and environmental planning work. The subsequent sections outline how the equity focus has informed the plan development process.

Environmental Justice

Introduction

eNEO2050's emphasis on equity merits some guidelines on how NOACA will define its equity focus within the context of transportation and environmental planning. The plan satisfies this need in many ways, but especially through the concept of "environmental justice" (EJ). The United States Environmental Protection Agency (US EPA) defines Environmental Justice as "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."[8]

To develop its equity approach, NOACA has taken into consideration Title VI of the Civil Rights Act of 1964, President Bill Clintons Executive Order 12898 and best practices and recent academic findings on equity issues. Title VI, of the Civil Rights Act of 1964, prohibits discrimination on the basis of race, color, or national origin in federal assistance-funded programs.[9] Transportation agencies are legally required to comply with Title VI, and both the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) must monitor their compliance.

For many years, experts strived to advance EJ—with varying degrees of success—through the law, public health, public involvement, and waste management. EJ, as acknowledged by President Bill Clinton in 1994 via Executive Order 12898, is a key component to achieve equitable treatment of all populations with regard to construction of new infrastructure.[10] This means EJ is about planning as well.

The practice of planning is not based on a static model. The profession regularly adapts to new trends, opportunities, and challenges. Current trends in academia, as well as among practitioners, suggest planners will have to become proficient in social equity issues, including EJ, which were once seen as beyond their purview.

NOACA Environmental Justice (EJ) Analysis

Households, places of employment, retail districts and centers, recreation and entertainment destinations, and other land-use types produce and attract trips. The NOACA region is subdivided into approximately 5,000 small, geographic areas such as neighborhoods to connect these land uses to the street network. Given the Title VI compliance requirements monitored by the Federal Transit Administration (FTA) and Federal Highway Administration (FHWA), NOACA staff use these neighborhoods, also called Traffic Analysis Zones (TAZ), as the primary unit of EJ analysis.

The TAZ neighborhood system is also used to model travel behavior. Travel occurs between TAZ neighborhoods; each trip begins and ends in a specific TAZ.

NOACA staff implement their EJ analysis through the following steps so they can identify and map EJ areas in Northeast Ohio:

1. Calculate the percentage of both the United States current population and NOACA's current population that is "minority."

---

[8] United States Environmental Protection Agency (US EPA), Environmental Justice, 2020, https://www.epa.gov/environmentaljustice (accessed January 15, 2021).

[9] US EPA Programs and Projects of the Office of General Counsel, The Facts on Title VI of the Civil Rights Act of 1964, 2020 https://www.epa.gov/ogc/facts-title-vi-civil-rights-act-1964#:~:text=Protecting%20Civil%20Rights%3A%20Title%20VI%20of%20the%20Civil,not%20include%20income%20level%20as%20a%20protected%20classification (accessed January 15, 2021).

[10] US EPA Laws and Regulations, Summary of Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice (accessed January 15, 2021).

2. Calculate the percentage of both the United States current population and NOACA's current population that is below the poverty level.
3. Compare the values in Step 1; the lesser value is the minority criterion. Compare the values in Step 2. The lesser value is the poverty criterion.
4. For each TAZ, NOACA staff estimate the minority and poverty percentages of that TAZ's current population.
5. If either the TAZ's minority percentage or poverty percentage exceeds the minority criterion or the poverty criterion, respectively, then NOACA staff identify that TAZ as an Environmental Justice Area of Concern.

Table 1-13 shows the current United States and NOACA minority and poverty percentages. The highlighted values reflect the criteria identified in Step 3.

Table 1-13. Input Data to NOACA EJ analysis[11]

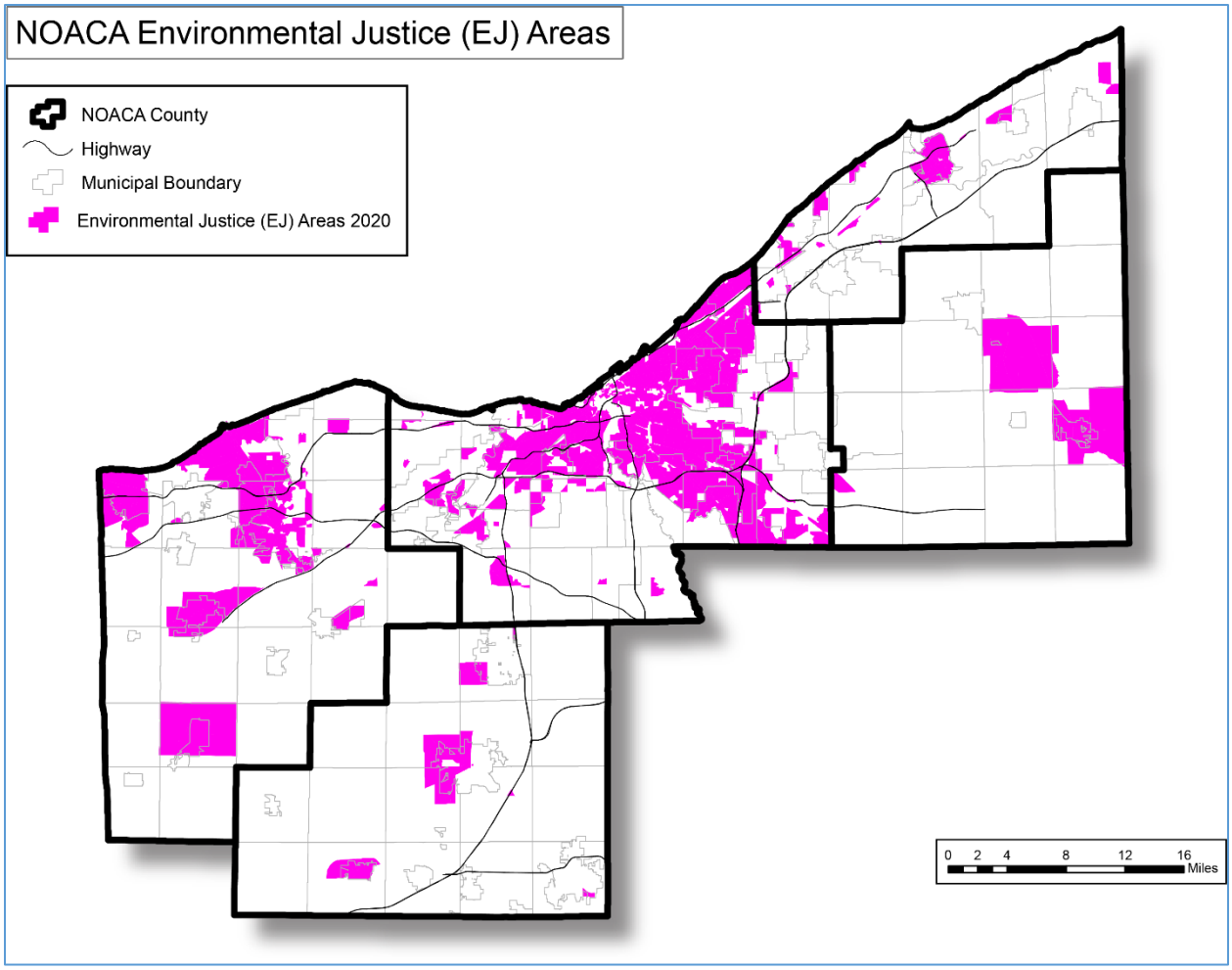
Environmental Justice Element	U.S.	NOACA
Minority Percentage	40.05%	30.73%
Poverty Percentage	12.34%	13.47%

Source: American Community Survey (ACS)

Figure 1-2 illustrates the TAZs that qualify as Environmental Justice Areas, per Step 5.

Figure 1-2. NOACA Environmental Justice (EJ) Areas

[11] American Community Survey (ACS) 2019, 1-year estimates https://data.census.gov/cedsci/ (accessed September 24, 2020).



Regional Demographic Trends

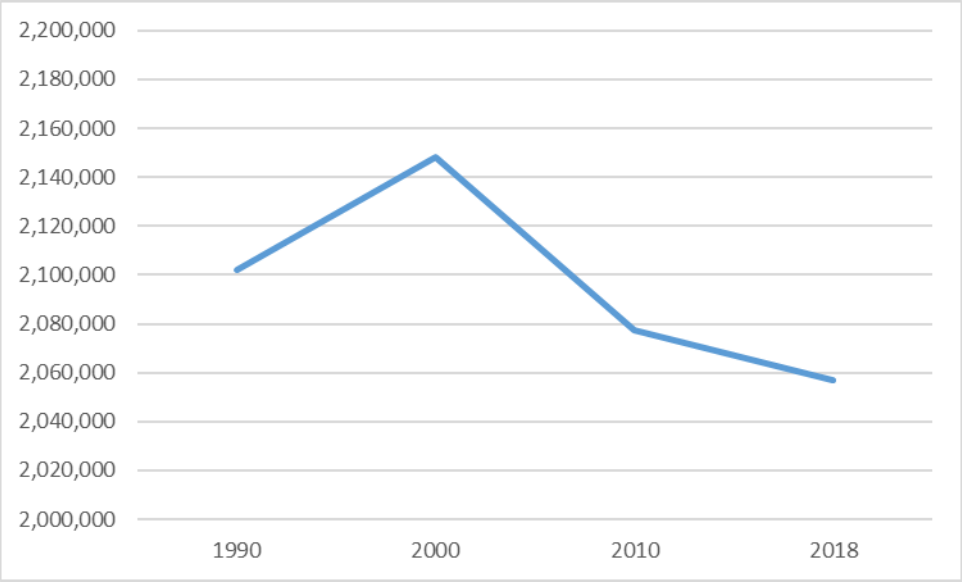
The following section presents how population and employment have changed in Northeast Ohio over the past 30 years. This initial discussion of past population and employment trends sets the tone for the rest of the document, just like the previous EJ section, for the deeper discussion into the current transportation system (Chapter 3), the reasons for these changes, as well as their impacts (Chapters 5-8), and the projections for future changes (Chapter 9).

Population

NOACA's regional population has experienced a slight decline in the past three decades (see Figure 1-3). Overall, the regional population has hovered just over 2 million. Between 1990 and 2000, regional population increased only slightly at a rate of 2.2% to approximately 2.15 million. After 2000, the region's population dropped to 2.05 million by 2018.

Figure 1-3. Regional Population Change (1990-2018)[12]

[12] American Community Survey, Decennial Census 1990-2010, 2018 1-year estimates, https://data.census.gov/cedsci/ (accessed April 29, 2020).



Source: American Community Survey

Table 1-14. Population Change by County, City of Cleveland, and NOACA Region (1990-2018)[13]

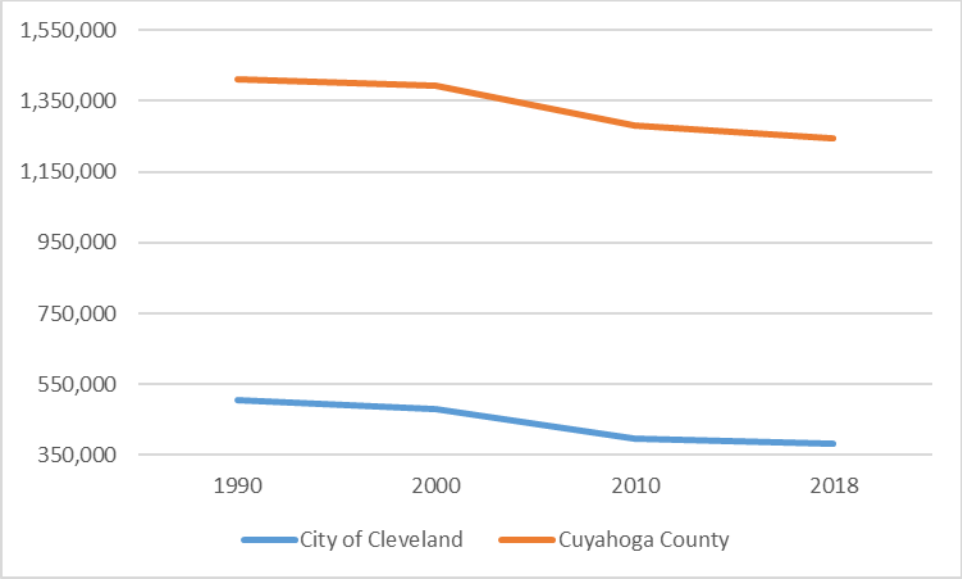
Geography	1990	2000	2010	2018	Change 1990-2000	Change 2000-2010	Change 2010-2018	Change 1990-2018	% Change 1990-2000	% Change 2000-2010	% Change 2010-2018	% Change 1990-2018
Cuyahoga County	1,412,140	1,393,978	1,280,122	1,243,857	-18,162	-113,856	-36,265	-168,283	**-1.3%**	**-8.2%**	**-2.8%**	**-11.9%**
City of Cleveland	*505,616*	*478,403*	*396,815*	*383,781*	*-27,213*	*-81,588*	*-13,034*	*-121,835*	***-5.4%***	***-17.1%***	***-3.3%***	***-24.1%***
Geauga County	81,129	90,895	93,389	94,031	9,766	2,494	642	12,902	**12.0%**	**2.7%**	**0.7%**	**15.9%**
Lake County	215,499	227,511	230,041	230,514	12,012	2,530	473	15,015	**5.6%**	**1.1%**	**0.2%**	**7.0%**
Lorain County	271,126	284,664	301,356	309,461	13,538	16,692	8,105	38,335	**5.0%**	**5.9%**	**2.7%**	**14.1%**
Medina County	122,354	151,095	172,332	179,146	28,741	21,237	6,814	56,792	**23.5%**	**14.1%**	**4.0%**	**46.4%**
NOACA Region	2,102,248	2,148,143	2,077,240	2,057,009	45,895	-70,903	-20,231	-45,239	**2.2%**	**-3.3%**	**-1.0%**	**-2.2%**

Source: American Community Survey

When NOACA examined the population figures by county (Table 1-14), a pattern of outward migration and suburbanization was revealed. The central and most populous county of the region, Cuyahoga County, has seen the greatest decline in population (nearly 12% from 1990 to 2018). This trend is driven primarily from losses experienced by Cuyahoga County's urban core communities, the largest being the City of Cleveland. Over the same period, the City of Cleveland lost approximately 24% of its population. Most of the population decline within Cuyahoga County and the City of Cleveland occurred between 2000 and 2010 (see Figure 1-4).

Figure 1-4. Population Change for Cuyahoga County and City of Cleveland (1990-2018)[14]

[13] Ibid.
[14] Ibid.

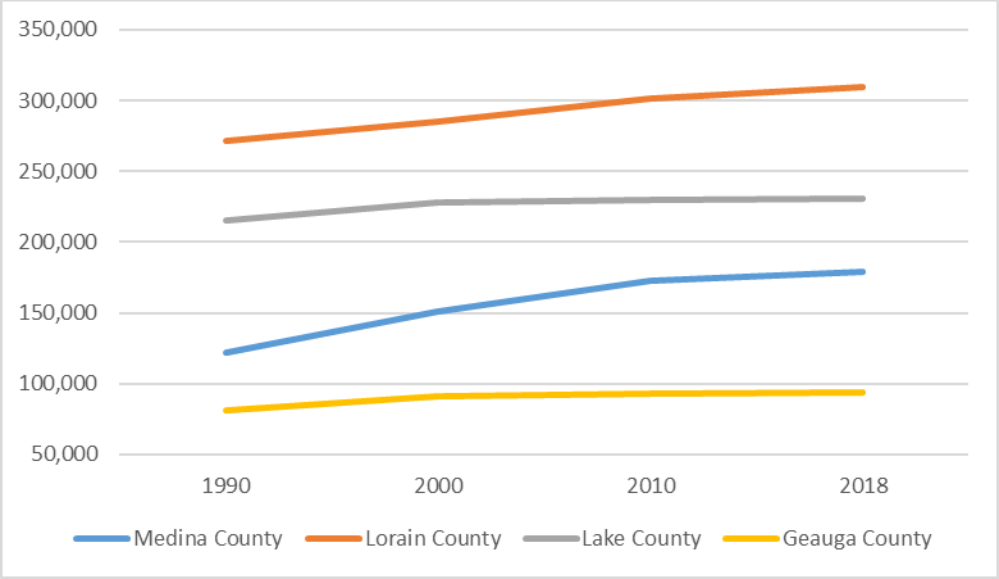


Source: American Community Survey

Because the City of Cleveland and Cuyahoga County account for the overall NOACA regional population loss, the collar counties of Geauga, Lake, Lorain, and Medina have experienced moderate to high levels of population growth, which has slowed considerably in recent years. This growth has somewhat tempered Cuyahoga County's population loss. Lake County saw the lowest level of growth (7% between 1990 and 2018). Lorain County and Geauga County grew at moderate rates of 14% and 16%, respectively, during the same period. Medina County experienced a high level of growth between 1990 and 2018 (46%). Medina County saw the most population growth (both percentage and absolute) for almost every time period in Table 1-15.

Figure 1-5. Population Change for Geauga, Lake, Lorain and Medina Counties (1990-2018)[15]

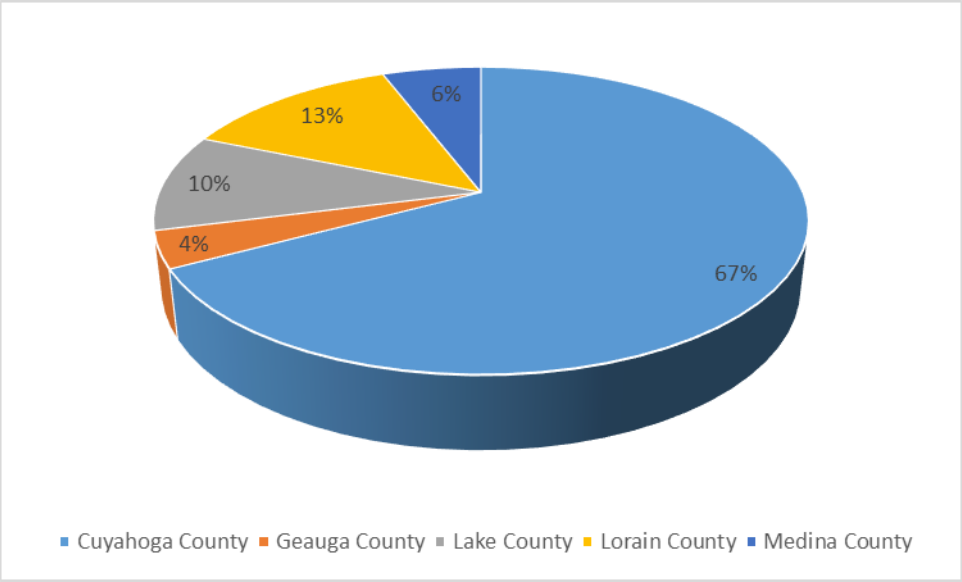
[15] Ibid.



Source: Decennial Censuses 1990-2010, American Community Survey (ACS)

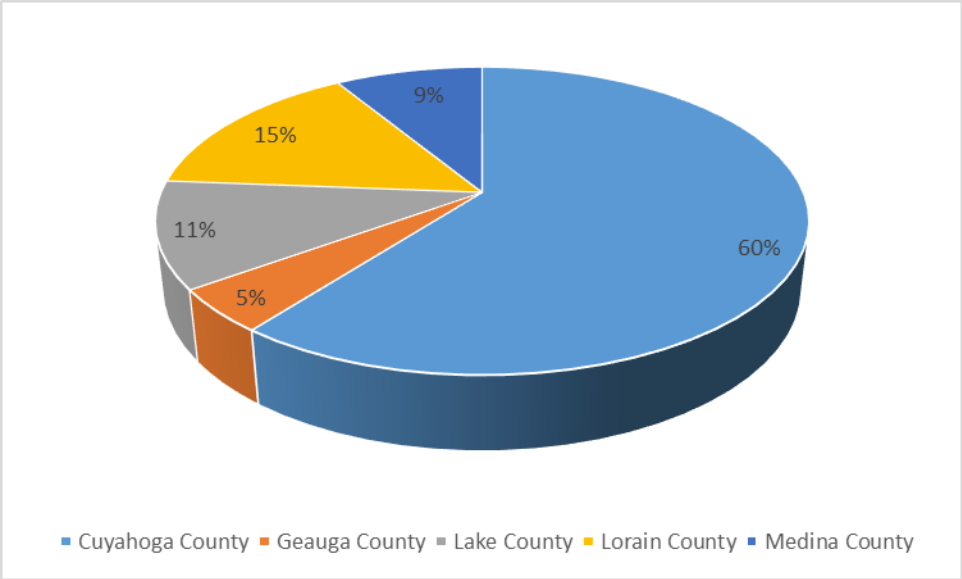
Much of the growth of the collar counties represents a shift or redistribution of population throughout the region that began in the 1960s. In 1990 Cuyahoga accounted for 67% of the regional population (Figure 1-5). In 2018, Cuyahoga's share dropped to 60% of the regional population (Figure 1-6). Much of the increase in regional population share occurred in Medina and Lorain counties, which experienced a 5% combined regional share increase (from 19% to 24%). Lake and Geauga counties also gained in their regional population share, but they experienced only a combined increase of 2%. Despite the high level of population redistribution throughout the region, the population gains of the collar counties do not account for all of the population losses of Cuyahoga County; therefore, NOACA concluded the region's population has declined.

Figure 1-6. County Share of Regional Population (1990)[16]



Source: U.S. Census Bureau (1990). Accessed April 29th, 2020 via https://data.census.gov/cedsci/

Figure 1-7. County Share of Regional Population (2018)[17]



Source: American Community Survey

Despite the lack of regional growth, the historic data indicates that the rate of decline for the region has slowed. For example, Cuyahoga County, the only county to experience a decrease, saw its decline rate change from approximately 8% to approximately 3%. On the opposite side of the spectrum, however, Medina County saw its growth rate decline from approximately 14%

[16] U.S. Census Bureau (1990). Accessed April 29th, 2020 via https://data.census.gov/cedsci/
[17] American Community Survey (ACS) 2018 1-year estimates. Accessed April 29th, 2020 via https://data.census.gov/cedsci/

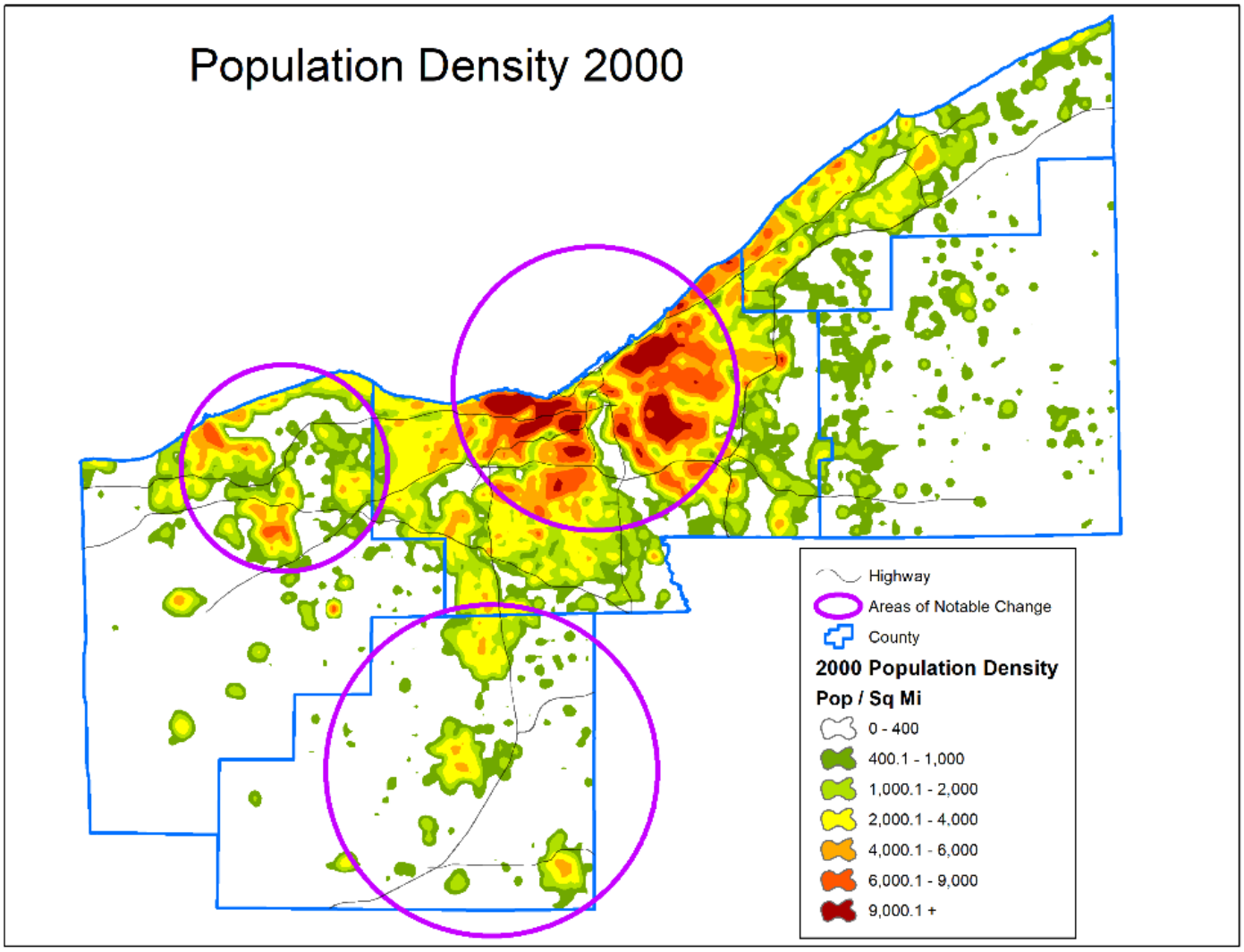
to about 4%. These historic trends seem to indicate that the rate of population sprawl in the NOACA region has slowed somewhat.

Population Density

NOACA also investigated population density levels, but only from 2000 to 2018 (Census block level data used to produce the following density maps is unavailable for 1990). This analysis showed regional patterns of sprawl at the sub-county level (see Figures 1-8 and 1-9). In Cuyahoga County, the density of the urban core declined dramatically on its eastern side, but not so much elsewhere. Therefore the conclusion is that much of the population loss in Cuyahoga County between 2000 and 2018 is attributed to the eastern half of the urban core. Downtown Cleveland and the near west side neighborhoods (e.g., Ohio City) did not experience this same decline. Rather, from 2000 to 2018, there was a large increase in population density in these Cleveland neighborhoods. These areas account for the only noticeable increase in density within the urban core of Cuyahoga County.

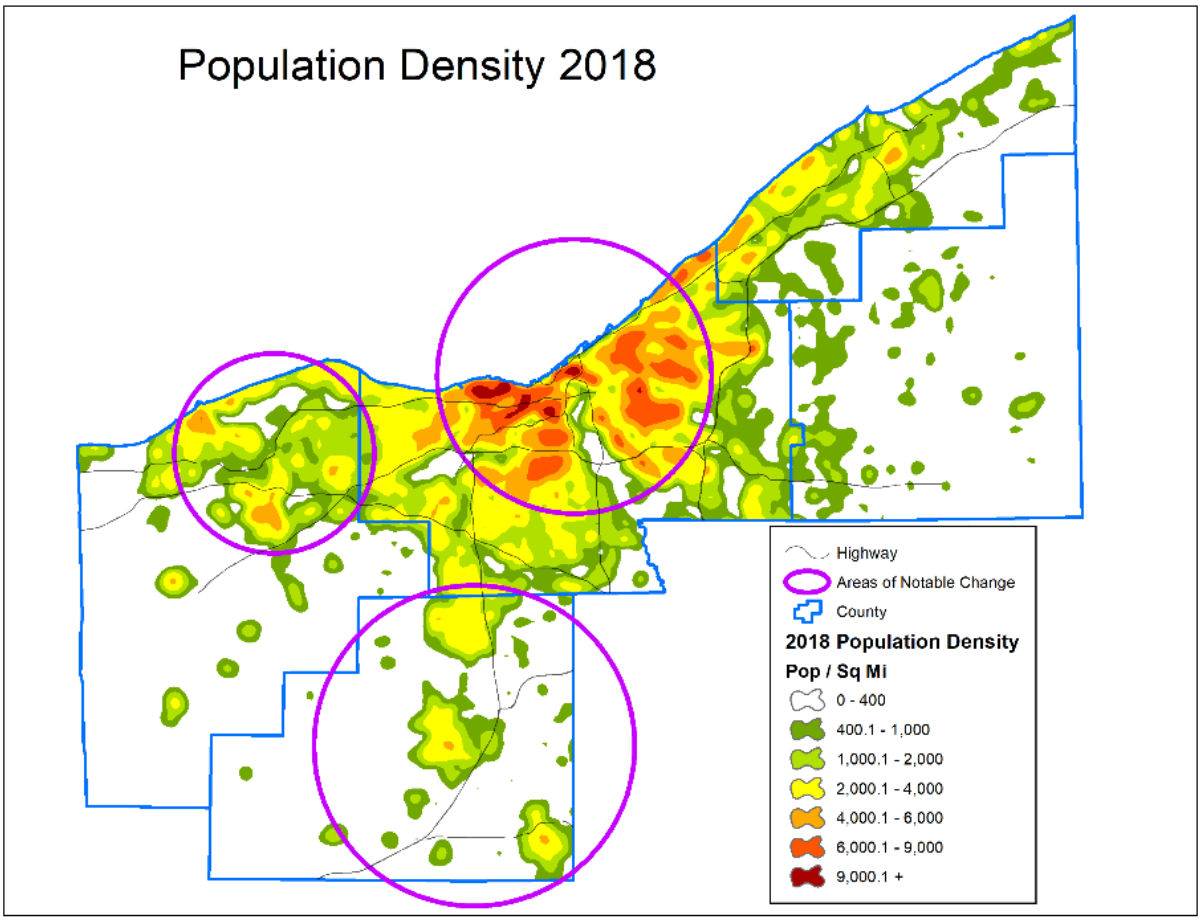
Lorain County experienced a substantial change in density levels between 2000 and 2018. Its urban core (the cities of Elyria and Lorain in the north-central part of the county) shows a moderate amount of density loss. In the northeast section of the county, mainly in the suburbs of Avon Lake, Avon, and North Ridgeville, there was a great increase in population density over that same period. Medina County also saw a slight amount of population density increase. The three largest cities of that county—Brunswick, Medina, and Wadsworth—all have experienced such increases.

Figure 1-8. Regional Population Density (2000)[18]



[18] NOACA analysis of Decennial Census 2000 (block geography); ibid.

Figure 1-9. Regional Population Density (2018)[19]



Employment

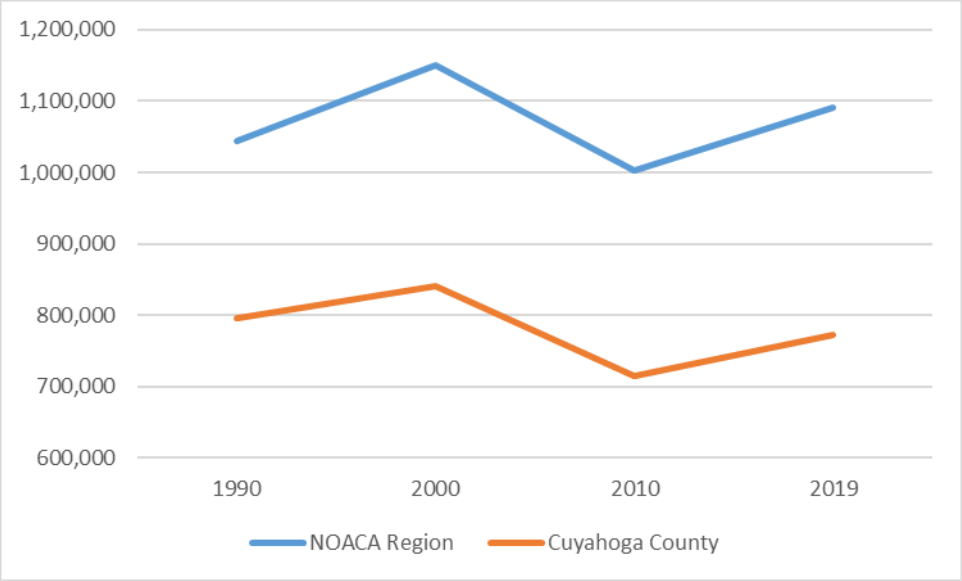
The total number of jobs in the region has moderately increased over the last three decades, fluctuating between 1 and 1.15 million. Unlike regional population trends, the total number of regional jobs tend to vary more dramatically, based on the health of the economy (Figure 1-10). For example, the region experienced a substantial level of job gains between 1990 and 2000 (more than 100,000 jobs at a 10% increase), but subsequently experienced a massive level of job losses between 2000 and 2010 (nearly 150,000 jobs at a 13% decrease) due to two recessions. Between 2010 and 2019, the economy recovered somewhat to end above the 1990 jobs level, but not enough to end above the 2000 jobs level. To be more precise, as a region of 2 million people, we have gained 47,158 jobs over the past 30 years.

Cuyahoga County followed a similar pattern as the NOACA region with regard to the change in total jobs from 1990 to 2019. There is a key difference, however. When the entire three decades are taken as a whole, Cuyahoga County lost 3% of its total jobs, while the NOACA region grew by more than 4%. Some of that regional growth can be attributed to the collar counties (Geauga, Lake, Lorain, and Medina) which experienced a positive trend (see Table 1-

[19] NOACA analysis of forecasted Census block data using the Ohio Development Services Agency's (ODSA) county population forecasts (2013).

15 and Figure 1-11). Over the course of the 30 years, each collar county gained between 10,000 and 30,000 jobs, while Cuyahoga County lost nearly 24,000 jobs.

Figure 1-10. Employment Change for Cuyahoga County and NOACA Region (1990-2019)



Source: Moody's Economy.com. Obtained from Team NEO in February 2020.

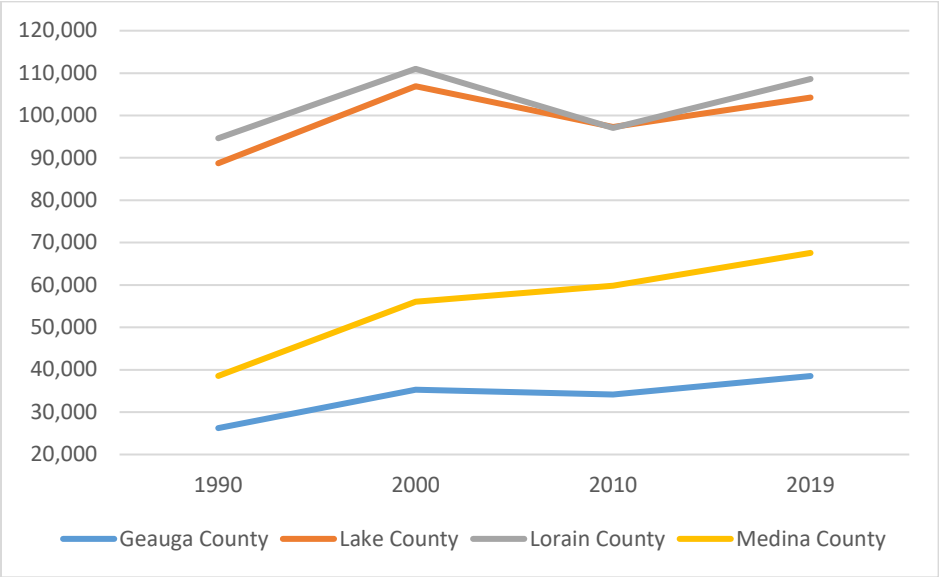
Nevertheless, this demonstrates the fairly stagnant job growth for a region hovering around 1 million jobs. In summary, Cuyahoga County never got back to its 1990 job levels and the jobs in the collar counties increased during the period; but overall, the NOACA region barely recovered from its job losses that occurred during the 2000s.

Table 1-15. Total Employment Change by County and NOACA Region (1990-2019)

Geography	1990	2000	2010	2019	Change 1990-2000	Change 2000-2010	Change 2010-2019	Change 1990-2019	% Change 1990-2000	% Change 2000-2010	% Change 2010-2019	% Change 1990-2019
Cuyahoga County	796,187	840,710	714,017	772,531	44,523	-126,693	58,514	-23,656	**5.6%**	**-15.1%**	**8.2%**	**-3.0%**
Geauga County	26,232	35,269	34,148	38,512	9,037	-1,121	4,364	12,280	**34.5%**	**-3.2%**	**12.8%**	**46.8%**
Lake County	88,721	106,897	97,271	104,229	18,176	-9,626	6,958	15,508	**20.5%**	**-9.0%**	**7.2%**	**17.5%**
Lorain County	94,623	111,003	97,025	108,621	16,380	-13,978	11,596	13,998	**17.3%**	**-12.6%**	**12.0%**	**14.8%**
Medina County	38,539	56,020	59,816	67,567	17,481	3,796	7,751	29,028	**45.4%**	**6.8%**	**13.0%**	**75.3%**
NOACA Region	1,044,302	1,149,899	1,002,277	1,091,460	105,597	-147,622	89,183	47,158	**10.1%**	**-12.8%**	**8.9%**	**4.5%**

Source: Moody's Economy.com. Obtained from Team NEO in February 2020.

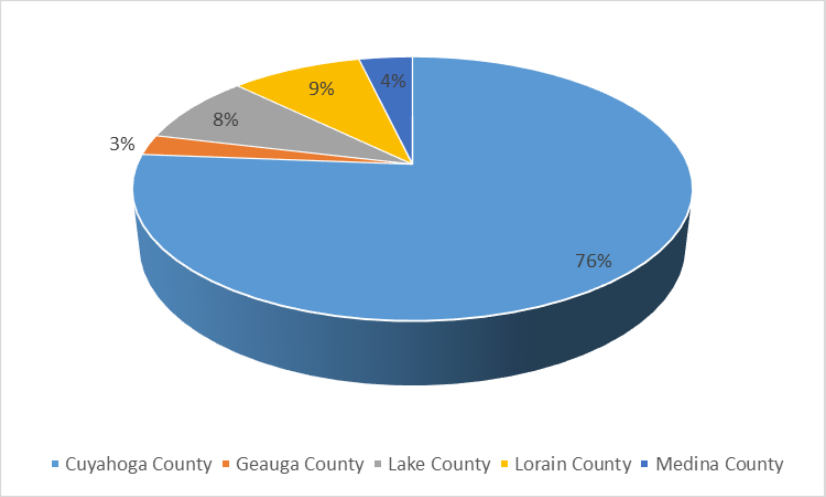
Figure 1-11. Employment Change for Geauga, Lake, Lorain and Medina counties (1990-2019)



Source: Moody's Economy.com. Obtained from Team NEO in February 2020.

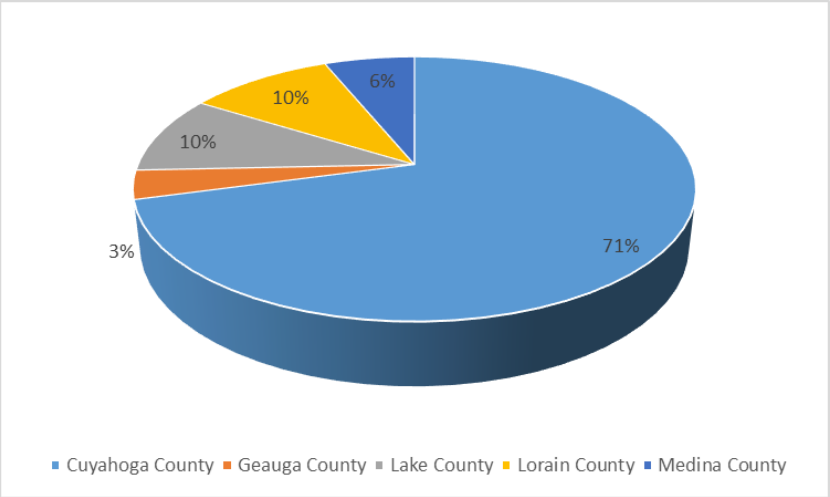
Similar to population, the geographic distribution of jobs throughout the region shows a pattern of outward migration and suburbanization. Unlike the population trends, though, the job gains in the collar counties have exceeded the job losses in Cuyahoga County, so the entire region has seen an increase in the number of jobs between 1990 and 2019. Jobs are now more widely distributed throughout the outer counties, and the overall job share of Cuyahoga County has declined (see Figures 1-12 and 1-13). In 1990, Cuyahoga County accounted for 76% of all jobs in the region. By 2019, Cuyahoga County's share had dropped to 71%. Nevertheless, looking at the job densities in the subsequent section indicates a variety in gains and losses within Cuyahoga County.

Figure 1-12. County Share of Regional Employment (1990)



Source: Moody's Economy.com. Obtained from Team NEO in February 2020.

Figure 1-13. County Share of Regional Employment (2019)

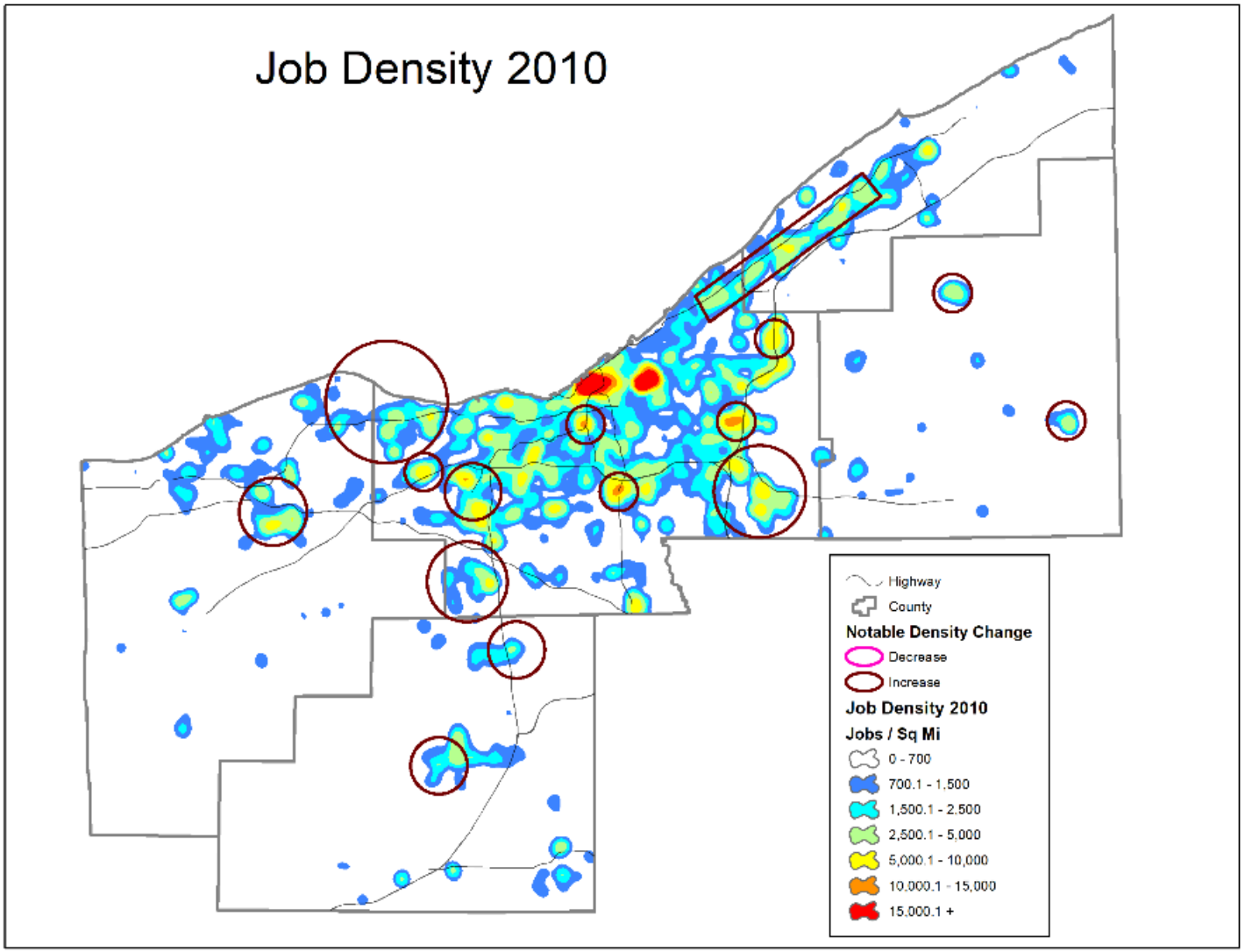


Source: Moody's Economy.com. Obtained from Team NEO in February 2020.

Employment Density

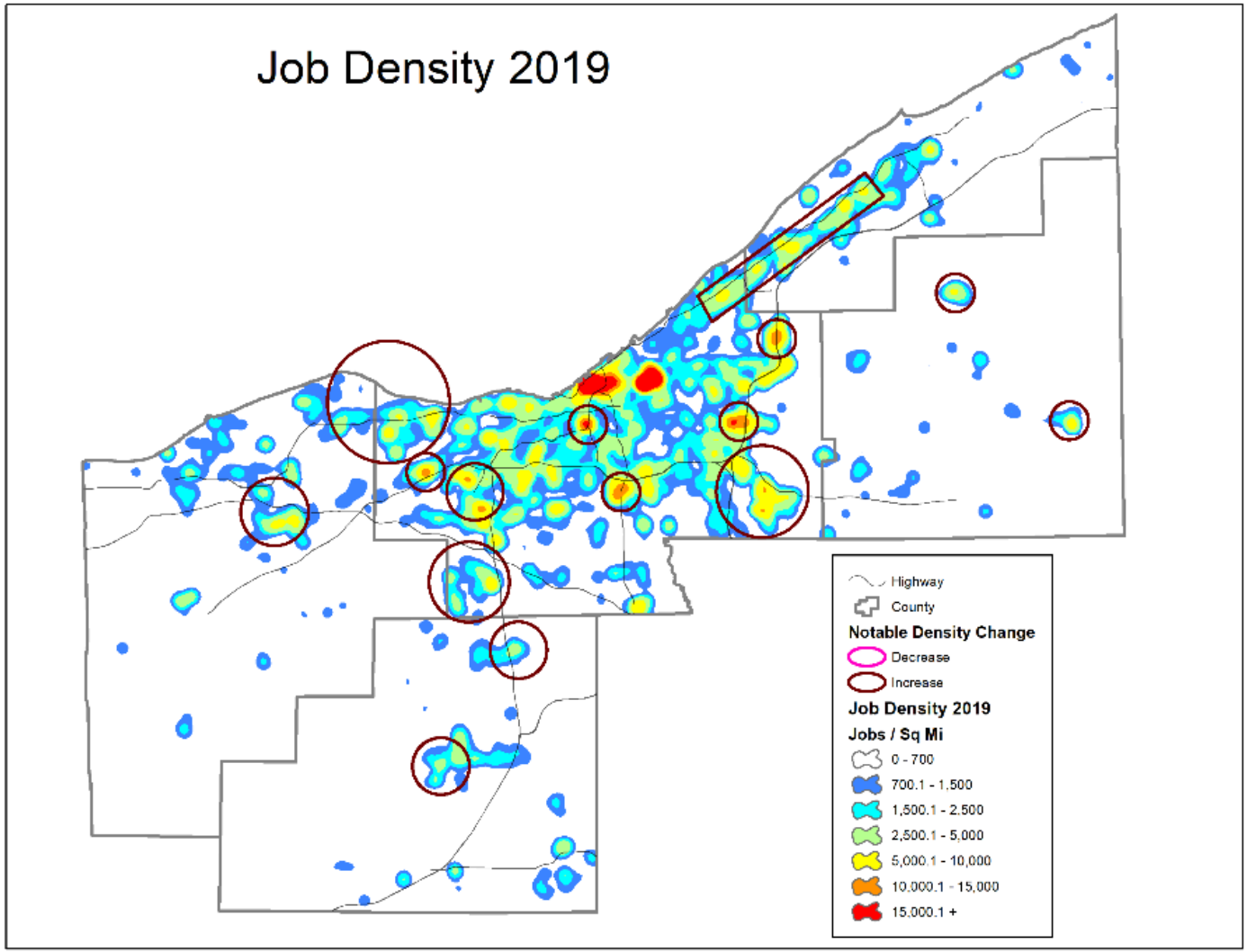
Job density levels (sub-county) between 2010 and 2019 show growth in the region after the economic downturn of 2008-2009 (employment data at the necessary scale to map job density is unavailable for years prior to 2010) (see Figures 1-14 and 1-15). Suburban cities outside of the inner-ring, such as Strongsville, Avon, and Mentor, all experienced notable increases in job density during the past decade. Areas with a high concentration of manufacturing jobs, such as the Cleveland Hopkins Airport area, Solon, and Elyria, all saw increases in density due to the rebound of the basic sector after the recessions of the 2000s (though the longer-term trend for manufacturing is still negative; see Chapter 5). Major employment centers, such as Independence and Chagrin Highlands, also saw their jobs increase, as did the job hubs in more rural areas like Medina County. Downtown Cleveland and University Circle, both in Cuyahoga County, maintained high levels of job density (above 15,000 employees per square mile) during the past decade to remain the two largest employment hubs of the NOACA region, in terms of both job density and total jobs.

Figure 1-14. Regional Job Density (2010)



Source: Quarterly Census of Employment and Wages (QCEW) 2010. Obtained via the Ohio Department of Transportation (ODOT) in 2012.

Figure 1-15. Regional Job Density (2019)



Source: NOACA-forecasted data based on the Quarterly Census of Employment and Wages (QCEW) 2010 and county forecasts by Moody's Economy.com. QCEW data obtained from the Ohio Department of Transportation (ODOT) in 2012 and Moody's Economy.com data obtained from Team NEO in February 2020.

Employment by Major Sector

When NOACA examined job types at a regional level, a trend emerged. There has been a shift from basic/industrial types of jobs to service types of jobs. For the sake of simplicity and transportation modeling purposes, NOACA staff classified jobs into three major categories:

1. Basic (Industrial)
2. Retail
3. Service

Figure 1-16 summarizes industries included in these three major classifications.

Figure 1-16. Industries included in Major Employment Sectors

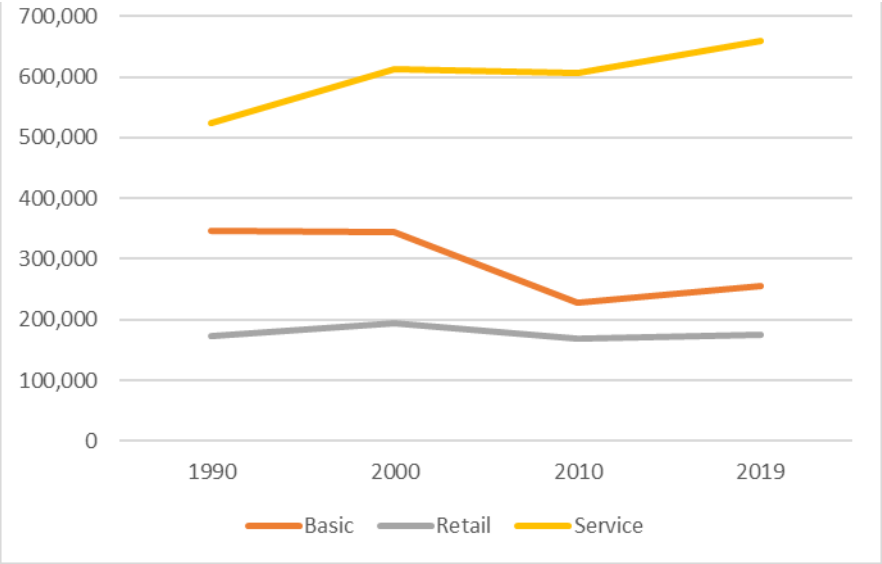
Basic:
- Agriculture, forestry, fishing, and hunting
- Mining, quarrying, and oil and gas extraction
- Utilities
- Construction
- Manufacturing
- Wholesale trade
- Transportation and warehousing

Retail:
- Retail trade
- Food services and drinking establishments

Service:
- Information
- Finance and insurance
- Real estate, rental, and leasing
- Professional, scientific, and technical service
- Management of companies and enterprises
- Administrative and support and waste management and remediation services
- Educational services
- Health care and social assistance
- Arts, entertainment and recreation
- Accommodations
- Public administration

NOACA, like other Midwestern regions, has experienced a decline in manufacturing and other industrial jobs. This decline in basic jobs has contributed to the low level of regional job growth over the past three decades (in fact, since the 1960s). From 1990 to 2019, the region lost more than 90,000 basic jobs. There was a modest increase in regional basic jobs between 2010 and 2019, around 28,000, but much of that growth is attributed to a small recovery from the recession of 2008-2009. On the other end of the spectrum, service sector jobs experienced a major increase between 1990 and 2019 (see Figure 1-17 and Table 1-16). Overall, the service sector employment increased by more than 135,000 jobs (26%). Retail employment throughout the region has remained relatively flat. This is not surprising since retail jobs are highly tied to the population and the overall health of the economy. Since the regional population has slowly declined and the economy has experienced a few downturns during the period, it makes sense that retail sector jobs have not changed significantly.

Figure 1-17. Regional Employment Sector Change (1990-2019)



Source: Moody's Economy.com. Obtained from Team NEO in February 2020.

Table 1-16. Regional Employment by Sector (1990-2019)

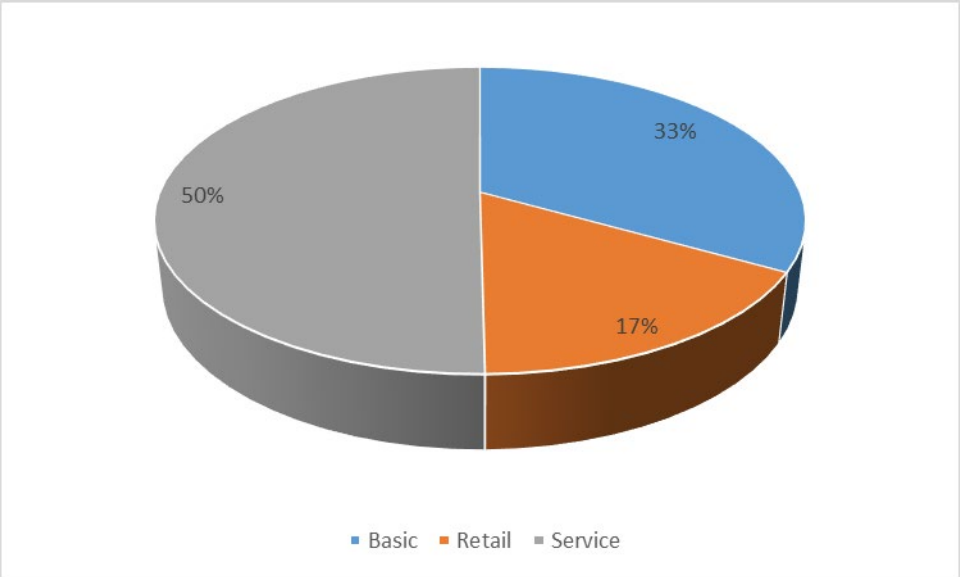
Job Type	1990	2000	2010	2019	Change 1990-2000	Change 2000-2010	Change 2010-2019	Change 1990-2019	% Change 1990-2000	% Change 2000-2010	% Change 2010-2019	% Change 1990-2019
Basic	346,760	343,383	228,380	256,417	-3,377	-115,003	28,037	-90,343	**-1.0%**	**-33.5%**	**12.3%**	**-26.1%**
Retail	173,247	194,034	168,088	175,138	20,787	-25,946	7,050	1,891	**12.0%**	**-13.4%**	**4.2%**	**1.1%**
Service	524,295	612,482	605,809	659,905	88,187	-6,673	54,096	135,610	**16.8%**	**-1.1%**	**8.9%**	**25.9%**

Source: Moody's Economy.com. Obtained from Team NEO in February 2020.

The regional job trends show the dichotomy between basic jobs and service jobs. While basic jobs declined at a rate of 26% between 1990 and 2019, service jobs increased at the same rate. Because the service industry is larger than the basic industry, the 26% increase results in a net gain for the region in terms of total jobs. The dominant dynamic has been the replacement of basic jobs with service jobs.

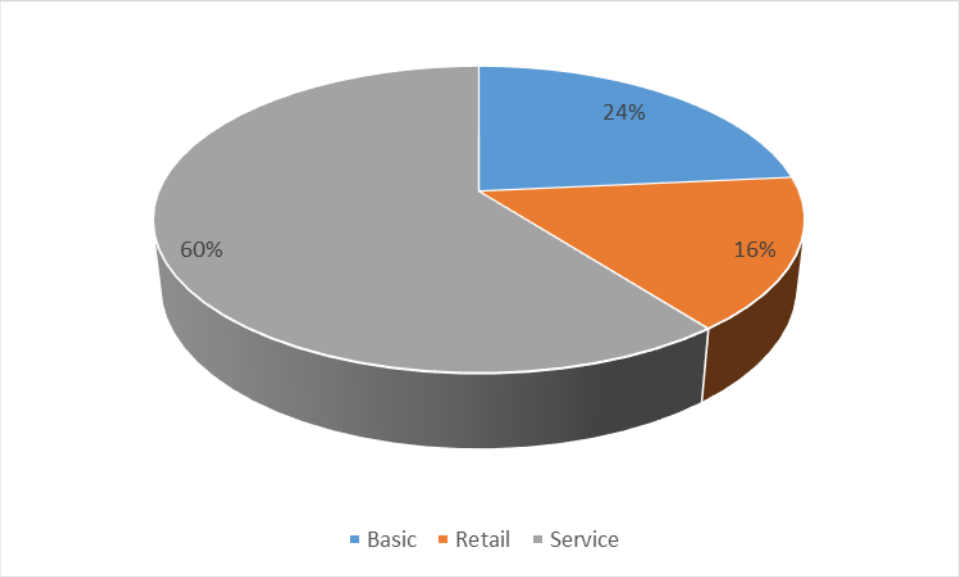
In 1990, the basic sector accounted for 33% of all the jobs in the NOACA region; by 2019, the basic sector share had dropped to 24% (see Figures 1-18 and 1-19). The service sector showed the opposite pattern: in 1990, 50% of the total jobs were in the service sector; by 2019, the service sector share had increased to 60%. Over the same period, the share of jobs in the retail sector stayed relatively constant. The transition from basic to service jobs reflects a trend throughout the United States for many years, especially in Midwestern regions like Northeast Ohio.

Figure 1-18. Employment Sector Share of Total Regional Jobs (1990)



Source: Moody's Economy.com. Obtained from Team NEO in February 2020.

Figure 1-19. Employment Sector Share of Total Regional Jobs (2019)



Source: Moody's Economy.com. Obtained from Team NEO in February 2020.

These demographic and economic trends form the foundation of the considerations about transportation infrastructure needs in the region. The subsequent section provides a brief summary of each chapters. Each chapter contains a plethora of detail and nuances on the many facets of our regional development patterns that shape transportation needs.

Summary of Chapters

Chapter 2: Examine Current Plans

This chapter reflects how NOACA built a foundation through visioning and planning activities of the past decade to undergird its look ahead to 2050. Three major planning documents, *Vibrant NEO 2040*, *Moving Forward Together*, and *Aim Forward 2040*, established the importance of a more comprehensive approach to regional planning. These efforts linked transportation, land use, housing, economic development, the environment, and public health. This chapter also explores the numerous planning efforts NOACA staff have successfully completed over the past several years on the varied topics of freight, safety, water quality, air quality, bicycle and pedestrian planning, and mobility for senior citizens and the disabled. This chapter also explores highlights of other metropolitan planning organizations' planning efforts to provide national context for NOACA. Finally, this chapter summarizes input from NOACA staff directly during a staff retreat held in January 2020 at the very beginning of the formal long range planning process. All of this input helped sculpt the final form and content of *eNEO2050*.

Chapter 3: Explore Regional Context

Chapter 3 introduces the current state of transportation infrastructure in Northeast Ohio. This includes the various components of the current system, including roadways (arterials and highways), bridges, public transportation (buses, bus rapid transit, light rail and heavy rail), bicycle infrastructure, pedestrian infrastructure, passenger and freight rail, ports, and traffic control devices. This chapter defines access versus mobility, and presents a detailed discussion of each concept.

The discussion includes general access to different components of the current transportation system (arterial network, freeway system, transit network) and important destinations (land uses and jobs). This plan particularly emphasizes the importance of job accessibility as a way to increase equity within the region. There is a significant presentation about jobs and job hubs (both major, minor and legacy job hubs), access to which form a core component for the current long-range plan.

The mobility discussion highlights elements of how easily people and goods move within the region's system. Traffic congestion is an important consideration, as delays can lengthen trips (commutes, for example). This phenomenon results from bottlenecks at certain points in the transportation network. Delays and congestion ultimately result in costs that can negatively impact individuals and the region. Finally, this chapter introduces the concept of transportation scenario planning and its purpose for *eNEO2050*. A full discussion of future transportation scenarios for Northeast Ohio and performance measures to assess those scenarios against the baseline and one another are the theme of Chapter 9.

Chapter 4: Engage the Community

NOACA considers strategic stakeholder and public involvement outreach essential to the success of the *eNEO2050* plan. Through a broad and diverse process, NOACA established a defined and integrated approach to reaffirm the long-term strategies and vision of *eNEO2050* for public input. Chapter 4 outlines NOACA's comprehensive approach through its equitable public engagement process, strategies, outreach, and approaches. Many of NOACA's efforts to solicit public comment involved creative endeavors for virtual connections, given the limits on in-person engagement due to the global pandemic. NOACA

implemented four phases of engagement to parallel the *eNEO2050* plan's development: Discovery, Alternatives, Preliminary Plan, and Final Plan. Some of the more innovative approaches employed by NOACA staff and consultants included a digital regional survey of a geographically and demographically representative sample of NOACA's adult population; a CrowdGauge tool used in a series of geographically focused remote interactive sessions; a comprehensive and dynamic web portal for all materials, activities, and updates related to the plan; a series of various events and products (podcasts, lunch-and-learns, videos, etc.) to attract different audiences through a spectrum of media; and education of NOACA's Board to become vocal champions for obtaining information and input among their constituencies and stakeholder groups.

Chapter 5: Enable the Economy

Broadly defined, economic development refers policy interventions that aim to improve the well-being of a community that is achieved through the creation or growth of businesses and jobs. Economic security is linked directly to quality of life for individuals and for society, which is often measured by income and tax base respectively, with income providing personal wealth and buying power and a tax base providing public services for all. The past 50 years mark a dramatic shift from the booming economic growth and expansion of Northeast Ohio prior to 1970, but there are signs that key sectors have emerged to help the region position itself for future opportunities. To do so, it is necessary to understand where the Northeast Ohio economy is currently and how it reached this point.

A regional economy needs to be inclusive, where all people and places prosper. Greater Cleveland has a growing health care sector as well as a manufacturing sector that remains strong, despite declines in employment. Decentralization of jobs and housing away from historical population centers, however, has created a spatial mismatch. This gap between where workers live and where employers locate is especially problematic for low-income and minority workers who lack affordable and reliable access to jobs.

This chapter will describe:

- The regional economy from past to present
- Geographic, income and racial disparities
- Current conditions of key industries
- Economic development stakeholders
- Current NOACA programs, policies and projects
- Strategies and initiatives around Northeast Ohio used to address current and future economic development
- Highlights of potential threats and opportunities from climate change and pollution

This chapter will integrate how transportation influences the development of Northeast Ohio's economy, particularly through NOACA's role to inform transportation policy decisions and fund projects. Finally, this chapter will discuss potential future transportation scenarios (introduced in Chapter 3) and how they might impact regional economic development by the year 2050.

Chapter 6: Excellent Housing

In Northeast Ohio, housing planning and policy are inconsistent at a regional level; they are fragmented across local jurisdictions and viewed within smaller scopes, including counties,

municipalities, neighborhoods, and developments. It is short-sighted, however, to neglect the impact that housing can have on the health of a region, particularly given the relationship between housing, land use, and transportation. Transportation and housing are inextricably linked, as are their influence on equity and quality of life in a region.

This chapter first presents the historical housing trends in the United States and Northeast Ohio over the past century, and then evaluates the policies that have shaped the current landscape. Secondly, it addresses the demographic changes in recent years, current trends that affect housing in the region, and NOACA's existing efforts to support communities that are challenged by an aging housing stock, declining population, and disinvestment. Finally, the chapter explores strategies and initiatives around Northeast Ohio to address future housing needs in the region, particularly how NOACA might affect transportation policy decisions to improve housing, property values, and equity. Chapter 3 introduced the framework for these future transportation infrastructure investment scenarios.

Chapter 7: Efficient Land Use

This chapter focuses on the relationship between the same transportation network and the region's land use. Although NOACA does not hold a formal role in local land use policy (the domain of municipal government), the agency's regional responsibilities for both transportation and environmental planning influence land use change. Transportation planning and land use planning must operate in tandem for Northeast Ohio to leverage its resources more efficiently.

Land use and transportation infrastructure impact the quality of life experienced by the current and future population. Where and how development occurs impacts the functionality of the current transportation system, which in turn influences future land use decisions. The five-county NOACA region has continued to experience population loss since 1970, yet that smaller population has expanded its development footprint over a broader area. Incentives to expand transportation infrastructure, such as the interstate highway system, simultaneously upended established existing minority and low- income communities in urban areas, as well as rural ones, subsequently facilitating outward migration of people and jobs to more remote areas. The consequence is an inefficient transportation system required to support that pattern of land consumption, with excess capacity in some areas, while new infrastructure is built in others. This pattern of land use, without the requisite regional population growth, has yielded a legacy of underutilized land and disinvestment in core, urban areas. Strategic investment in transportation infrastructure improvements can act as an effective counter measure to this legacy. Transportation projects should be more multi-modal with increased efficacy within existing communities, particularly in Environmental Justice Areas.

Chapter 8: Environment and Health

In Chapters 5-7, NOACA staff illustrate how the evolution of the region's transportation network shaped the economy, employment opportunity, housing, and land use for Northeast Ohio. Chapter 8 focuses on the relationships between the same transportation network and the region's land use, water quality, air quality, and resilience to climate change. As NOACA serves the region for both transportation and environmental planning, this plan integrates transportation, air quality, and water quality in a manner consistent with the priorities of NOACA as an Areawide agency.[20]

[20] In 1975, the Northeast Ohio Lake Erie Basin (NEOLEB) organization was designated by the Governor of Ohio under provisions of the federal Clean Water Act to perform the areawide water quality

Within this chapter are several discussions that center on the equity and environmental justice outcomes of planning related to land use, air quality, water quality, and climate resilience. Proposed future transportation scenarios will affect the region's air and water resources both directly and indirectly. Fundamental to environmental planning is clarity about the drivers of land use change within the region. Land use and transportation infrastructure affect the quality of life experienced by the current and future population. Planning for the future requires consideration of strategies to develop resilience to, and mitigation for, regional effects of climate change.

Chapter 9: Equal Access Future Transportation Scenarios

Chapter 9 embraces future possibilities for the NOACA region; the major theme is 2050 and what it could look like in terms of population and employment growth, transportation, job access, land use, and environmental quality. This chapter first sets the table for NOACA's "look ahead" baseline demographic projections. Then, present the foundation necessary to build the different scenarios for how the region may function in 2050: travel demand and supply side forecasting, highway capacity projects, rail line extensions, major transit hubs, innovative technology (including electric vehicle infrastructure), and active transportation facilities.

The four future transportation scenarios consist of population and employment forecasts and infrastructure investment priorities. MAINTAIN and CAR scenarios anticipate the baseline projections to remain the same, while the investment priorities are to take care of the existing system (MAINTAIN) and increase capacity of the arterial and highway network (CAR). The TOTAL and TRANSIT scenarios are different; they project population growth and employment growth above the baseline with expanded capacity of the region's public transportation network. This chapter presents each of these scenarios in detail, accompanied by performance measures that illustrate expected outcomes of these four different transportation investment priorities (including costs).

Chapter 10: Expected Financial Plan

Chapter 10 identifies and prioritizes projects and strategies to maintain, enhance, and expand the region's multimodal transportation network through 2050. The purpose of The Financial Plan is to demonstrate that NOACA can implement *eNEO2050* within specified fiscal constraints. This means that projects and strategies contained in the *eNEO2050* Final Plan (see Chapter 11) cannot exceed the amount of funding "reasonably expected to be available" during the life of the plan. NOACA staff will identify all necessary financial resources they reasonably expect to be available to carry out the *eNEO2050* Final Plan.

The *eNEO2050* Final Plan may also include visionary (e.g., illustrative) projects that are cost prohibitive for adoption in The Financial Plan, but are critical to achieve The eNEO2050 Final

---

management planning required under Section 208 of that Act. In 1990, the NOACA Board assumed the NEOLEB Board's areawide planning responsibilities for the five-county area. NOACA is organized under the Ohio Revised Code pursuant to the joint powers of County Government at ORC 307.14 et seq. Section 208 of the federal Clean Water Act sets forth requirements for water quality management plans (WQMPs) developed by areawide planning agencies (Areawides). In Ohio, the responsibilities for water quality management planning in urbanized areas are shared by Areawides and the Ohio Environmental Protection Agency (Ohio EPA). Authority for NOACA to perform the WQMP function is provided in state law at ORC 6111.02(A), 41-42. (accessed 4.14.2021 from https://www.noaca.org/regional-planning/water-quality-planning/areawide-water-quality-management-208-plan).

Plan's vision. NOACA may advance these projects if the agency identifies available funding and determines that the projects align with NOACA planning requirements during the specific planning horizon. NOACA staff refer to this as The Illustrative Plan.

The Financial Plan consists of the following key components:

- Primary Transportation Revenue Sources
- Forecasted Revenue Scenarios
- Cost Assumptions
- Forecasted Projects

The Financial Plan also includes an evaluation and recommendation of financing strategies NOACA may pursue to fund additional or illustrative projects and programs. In the case of new funding sources, NOACA staff identifies strategies to ensure their availability.

Chapter 11: *eNEO2050* Final Plan

The *eNEO2050* Final Plan essentially captures the elements of the four future transportation scenarios the public supports and that make financial sense from a projects standpoint. While it is possible that *eNEO2050* could be based on a single, preferred scenario, the reality is that public stakeholders and the fiscal analysis do not support just one complete scenario, but rather elements from multiple scenarios that outline a reasonable future for NOACA to pursue. Chapter 11 also presents the air quality conformity determination for the projects included in The Financial Plan, a required element to ensure that none of the planned projects to achieve the vision of the long-range plan will compromise the region's conformity to the National Ambient Air Quality Standards (NAAQS) through Ohio's State Implementation Plan (SIP).