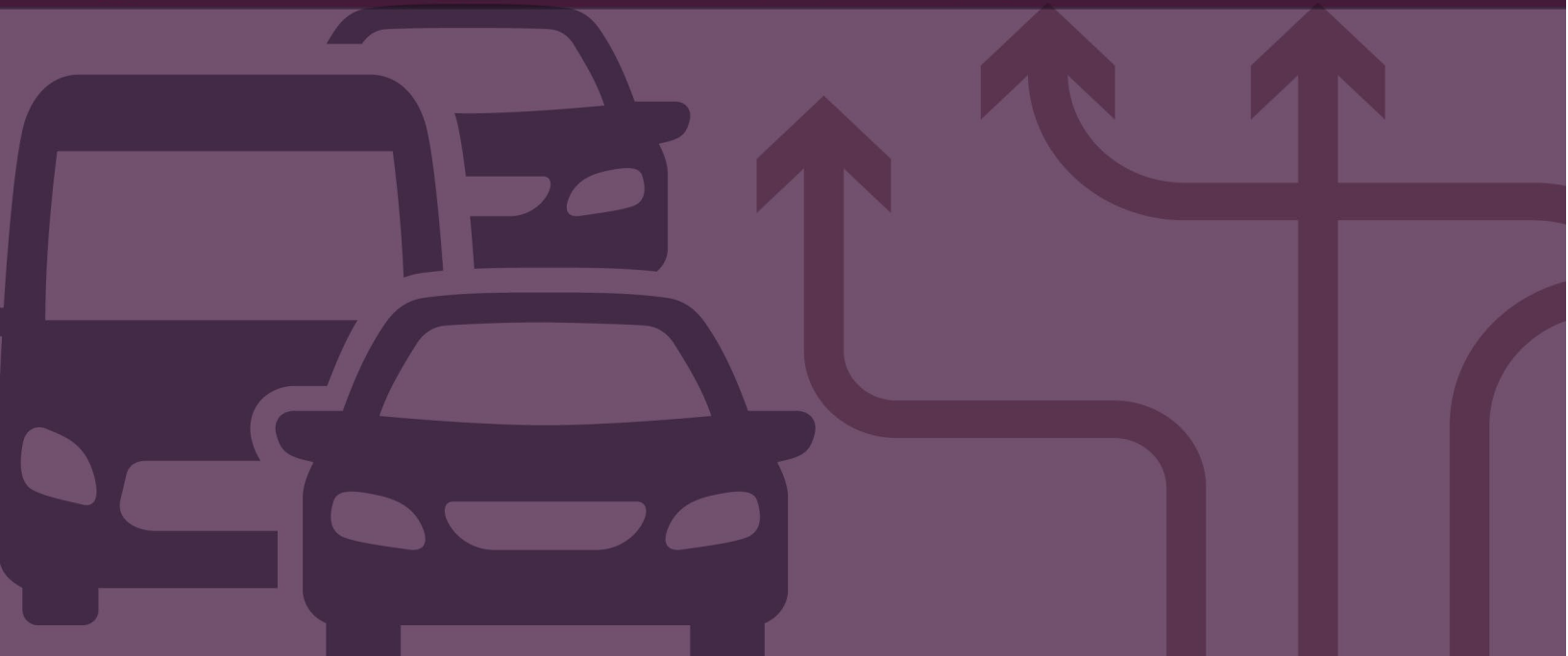


Appendix K: Equity and Environmental Justice Analysis



Introduction

The Let’s Go 2050 Regional Transportation Plan (RTP) serves as a framework for addressing the long-term transportation needs and goals in Southern Nevada. As the region plans for a sustainable and inclusive transportation system, it is essential to recognize the principles of equity and environmental justice. This appendix outlines potential benefits and impacts associated with the proposed project list and policies within the RTP, highlighting potential impacts on communities of concern in the region. Communities of concern include areas with demographic characteristics that indicate historically underserved populations, including people with low income, minority populations, people with limited English proficiency, senior populations, and people with disabilities.

Equity and Environmental Justice

Equity and environmental justice play pivotal roles in shaping transportation planning within the Regional Transportation Commission of Southern Nevada (RTC). In the context of transportation planning, equity involves considering the diverse needs of various communities and ensuring that no group is disproportionately burdened or excluded. It goes beyond equality by recognizing that different populations may require different levels of support to achieve equitable outcomes.

Environmental justice focuses on distributing environmental impacts fairly, particularly among historically marginalized groups. The RTC actively engages stakeholders, assesses disparities, and tailors solutions to address the unique challenges faced by communities of concern. By integrating equity principles, the RTC aims to create a transportation system that benefits every resident.

Legal Framework

The RTC serves as the metropolitan planning organization (MPO) for the Southern Nevada region and is a recipient of federal funds for regional transportation projects. The RTC is subject to the laws and regulations related to

environmental justice, including Title VI of the Civil Rights Act of 1964, Environmental Justice Executive Order 12898, Federal Transit Administration (FTA) Title VI Program (Title 23 Code of Federal Regulations [CFR] 200), and the Justice40 Initiative of Executive Order 14008. Table 1 summarizes a description of each regulation and its connection to the RTP.

Table 1: Legal Framework for Environmental Justice and Equity

Regulation	Description
Title VI of the Civil Rights Act of 1964	Prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance.
Environmental Justice Executive Order 12898	Requires federal agencies to consider the environmental and human health effects of their actions on minority and low-income communities.
FTA Title VI Program (23 CFR 200)	Requires MPOs to demonstrate that their planning processes consider the needs of certain populations based on race, color, national origin, sex, age, disability, income, and English proficiency status.
Americans with Disabilities Act	Prohibits discrimination against individuals with disabilities and ensures that people with disabilities have the same rights and opportunities as everyone else.
Executive Order 13166	Ensures that individuals whose first language is not English and who have a limited capacity to read, write, or understand English are provided meaningful access to programs, information, and services by any entity receiving federal funding.
Justice40 Initiative of Executive Order 14008	Addresses gaps in transportation infrastructure and public services by requiring that 40% of federal funding be allocated to equity-focused communities.

Related Plans

Additional RTC plans also address equity in transportation planning. Recent relevant plans are summarized below.

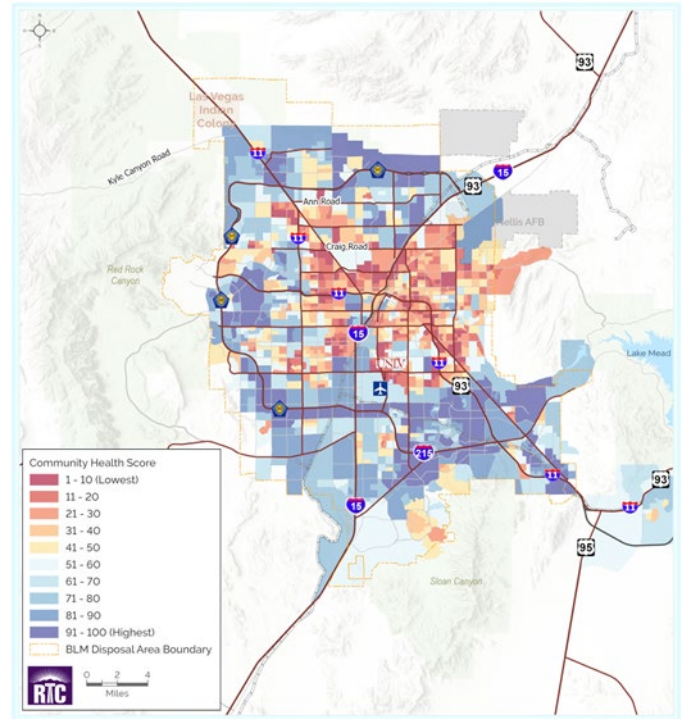
[Southern Nevada Transportation Impacts on Health \(2022\)](#)

Southern Nevada Transportation Impacts on Health provided an estimate of the regional transportation network's impacts on health. The study included the development of a tool set that would aid the RTC in measuring transportation-related health impacts that can be tracked through performance measures. Engagement efforts highlighted the links between transportation, health, and equity. As part of the plan, the community health score (CHS) was created. It combines 11 metrics to categorize populations within census block groups, considering factors related to vulnerability, risk, and accessibility (Figure 1). This index-based approach is used by the RTC to identify communities of concern and to evaluate projects from the RTP and Transit Improvement Plan (TIP). Lower CHSs indicate areas with higher health-related risks (Figure 1).

[Title VI MPO Report \(2022\)](#)

As a transit provider and designated MPO, the RTC receives federal funding for regional projects and is subject to Title VI of the Civil Rights Act of 1964, which mandates that agencies receiving federal funds must provide services without discrimination. The *Title VI MPO Report* documents RTC's compliance with Title VI and documents how the agency considers environmental justice for project planning, facility siting, and public involvement. This report is submitted to the Nevada Department of Transportation (NDOT) for inclusion in their Title VI report to the FTA and ensures that local agencies and MPOs in Nevada are compliant with Title VI.

Figure 1: Community Health Score



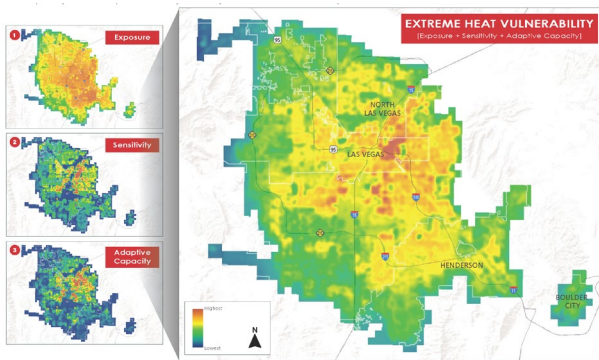
[Public Participation Plan \(2022\)](#)

The *Public Participation Plan (PPP)* outlines RTC policies and processes to involve stakeholder groups and citizens in regional transportation and transit planning. Federal regulations require MPOs to develop PPPs to define the public participation and amendment process for the RTP and TIP. The PPP outlines the required RTP public comment periods and meetings for the RTC Board, committees, and public review. The PPP uses the CHS from the *Southern Nevada Transportation Impacts on Health* to define disadvantaged communities within the RTP. Criteria and methodology are described in the following section.

Extreme Heat Vulnerability Study (2022)

The *Extreme Heat Vulnerability Study* outlined the impacts of extreme heat on health in the region. Some impacts of increasing temperature were related to transportation, such as poor air quality and additional wear and tear on infrastructure. The study aimed to reduce future adverse outcomes through the development of effective and coordinated responses during heat events as well as improving the awareness of public health officials and the general public about the health risks associated with extreme heat. An extreme heat vulnerability metric was developed through the study, with vulnerable areas designated by their exposure, sensitivity, and adaptive capacity (Figure 10). Hot spots for vulnerable communities were identified.

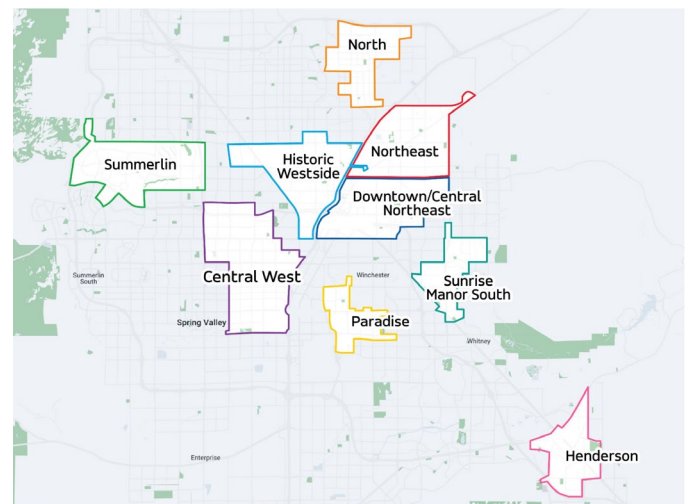
Figure 2: Extreme Heat Vulnerability Study - Regional Results



HOPE Grant Study (2022)

Funded by the FTA's Helping Obtain Prosperity for Everyone (HOPE) program, the RTC's *HOPE Grant Study* examined how on-demand microtransit can improve public transit services in low-income areas. On-demand microtransit is public transit service with flexible routing and scheduling of vehicles. The study identified nine potential on-demand microtransit zones that cover the majority of the federally designated areas of persistent poverty in the region. While the RTC is unlikely to launch all nine zones, each zone has been designed so that it can operate independently of any other zones (Figure 3). Report recommendations outline implementation steps for each zone, including accessibility, booking, vehicles, service hours, fares, bus stop model parameters, and multimodal integration.

Figure 3: HOPE Grant Study: Proposed On-Demand Microtransit Zones



Impacts to Disadvantaged Communities

Methodology

In transportation planning, equity plays a crucial role in identifying disadvantaged communities. Demographic indicators, like income or race, could indicate a historically underserved community that may need additional resources to foster a more equitable and accessible transportation system. The PPP outlines the RTC's approach to identifying populations with demographic indicators that could indicate a historically disadvantaged community that may need additional transportation resources. Three methodologies were used to evaluate equity, including required population screening, Justice40 disadvantaged communities, and the RTP's communities of concern.

Required populations include five demographic indicators required by federal Title VI and environmental justice regulations. These federal regulations require analysis of potential impacts and mitigation strategies for transportation projects that may disproportionately impact disadvantaged communities. In contrast, Justice40 aims to rectify underinvestment in equity-focused communities by improving transportation infrastructure and public services. Federal funding mandates the use of the tool for federal agencies covered under Justice40. Furthermore, federal agencies encourage others to utilize this tool in their applications for certain federal funding programs. The communities of concern is an index-based approach used by the RTC to identify communities of concern based on the community health score. The PPP outlines the use of Justice40 and communities of concern tools to evaluate each project in the RTP. Table 2 summarizes all three methodologies, with additional maps and discussion in the following sections.

Table 2: Equity and Environmental Justice Analyses

	Title VI/ Environmental Justice Required Populations	Justice40 Disadvantaged Communities	RTC of Southern Nevada Communities of Concern
Dataset Source	American Community Survey	Executive Order 14008	<i>Southern Nevada Transportation Impacts on Health (RTC)</i>
Description	Demographic characteristics required by Title VI and Environmental Justice	Disadvantaged populations by census tract	Community health index score by census blocks
Datasets	<ul style="list-style-type: none"> - Low income - Minority populations - Limited English proficiency - Vulnerable ages - People with disabilities 	<ul style="list-style-type: none"> - Climate change - Energy - Health - Housing - Legacy pollution - Transportation - Water and wastewater - Workforce development 	<ul style="list-style-type: none"> - Vulnerability - Transportation-related health risks - Health-related accessibility
Analysis Overview	Project overlap with federally funded RTP projects per regulation requirements	Impact and benefit analysis for full RTP project list	

Required Populations

Map Overlays

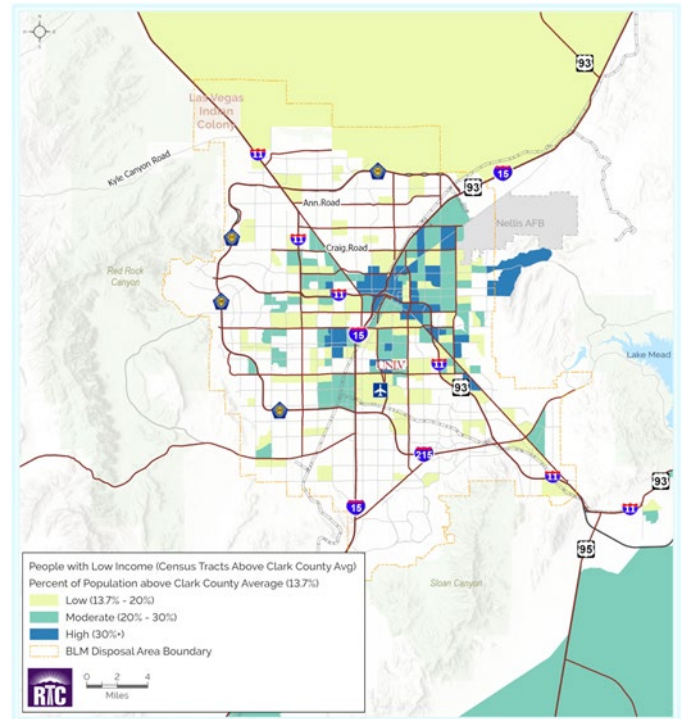
Required populations or required population groups are terms that refer to the communities for which analyses are required for an MPO to comply with federal laws and guidance relating to Title VI and environmental justice. These include five groups: low-income populations, minority populations, those with limited English proficiency, those in a vulnerable age group, and people with disabilities. Table 3 outlines the description and source for each dataset, including the national and

Clark County average. Figures 4 through 8 provide an overview of census tracts in the RTC planning area with populations above the Clark County average for each indicator, followed by a summary of the required population analysis.

Table 3: Identifying Required Population Groups

Indicator	American Community Survey (ACS) Description	National Average	Clark County Average	Data Source and Year
Low Income	Percentage of population whose income in the last 12 months is below the federal poverty level	13.9%	13.7%	ACS 5-year data, 2018-2022
Minority	Percentage of population that is not white alone and includes Hispanic and Latino	41.0%	59.4%	ACS 5-year data, 2018-2022
Limited English Proficiency	Percentage of population aged 5+ who have limited English ability	8.5%	13.1%	ACS 5-year data, 2018-2022
Vulnerable Ages	Percentage of population in dependent age group (under 18 and 65+)	38.7%	38.2%	ACS 5-year data, 2018-2022
People with Disabilities	Percentage of population with a disability	13.7%	13.1%	ACS 5-year data, 2018-2022

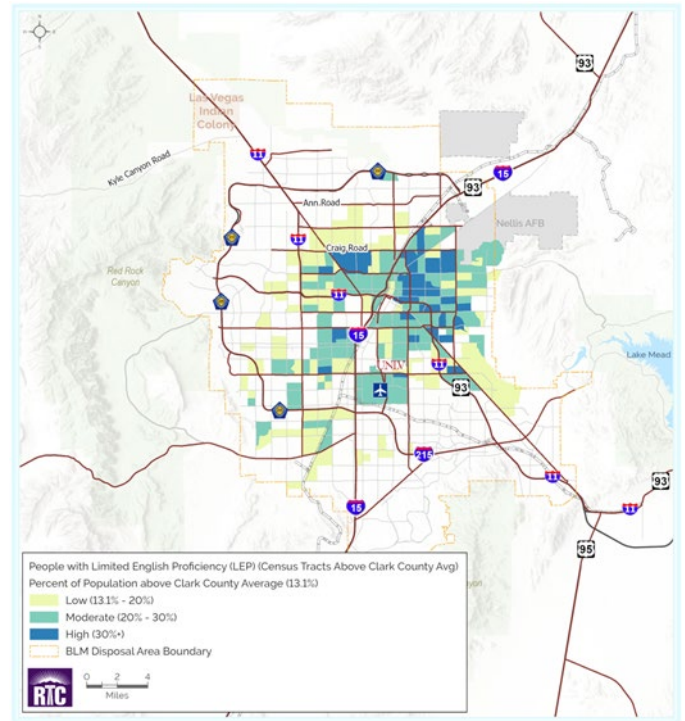
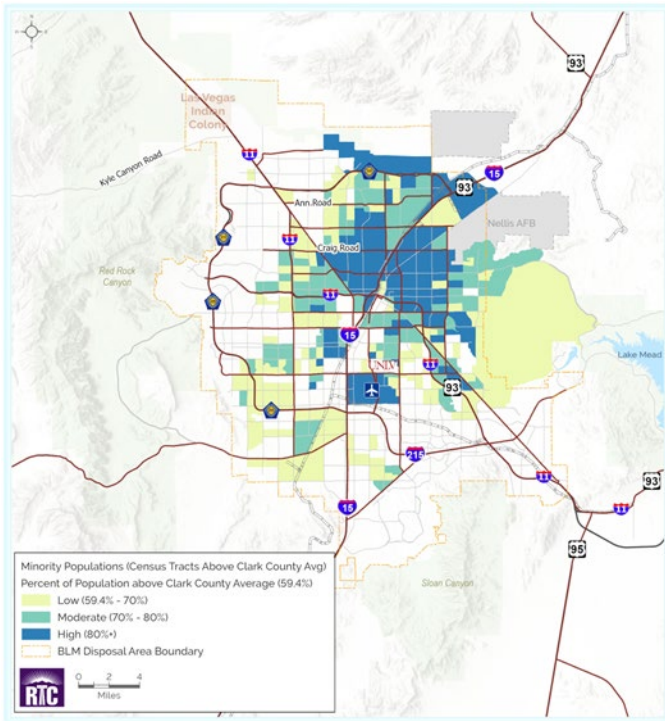
Figure 4: Required Populations: People with Low Income



On average, 13.7% of people in Clark County had an annual income that was below the federal poverty line. Tracts with above-average populations were dispersed across the region, with the highest concentrations of the indicator in the northeast area of the MPO.

Figure 5: Required Populations: Minority Populations

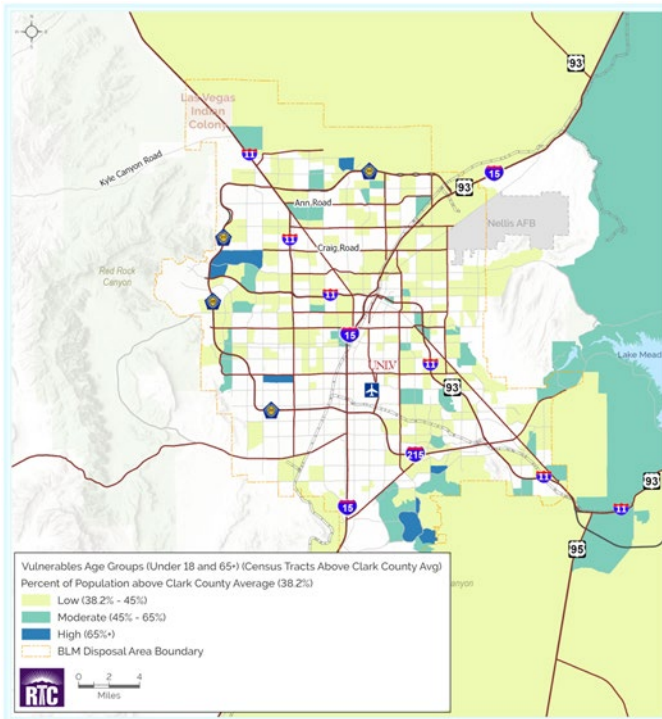
Figure 6: Required Populations: People with Limited English Proficiency



In Clark County, 59.4% of the population is considered a minority population, which includes individuals of Hispanic or Latino descent. The majority of tracts with above-average minority populations are situated in the urban core of the region. A concentration of tracts with elevated percentages of minority populations is primarily north of I-515.

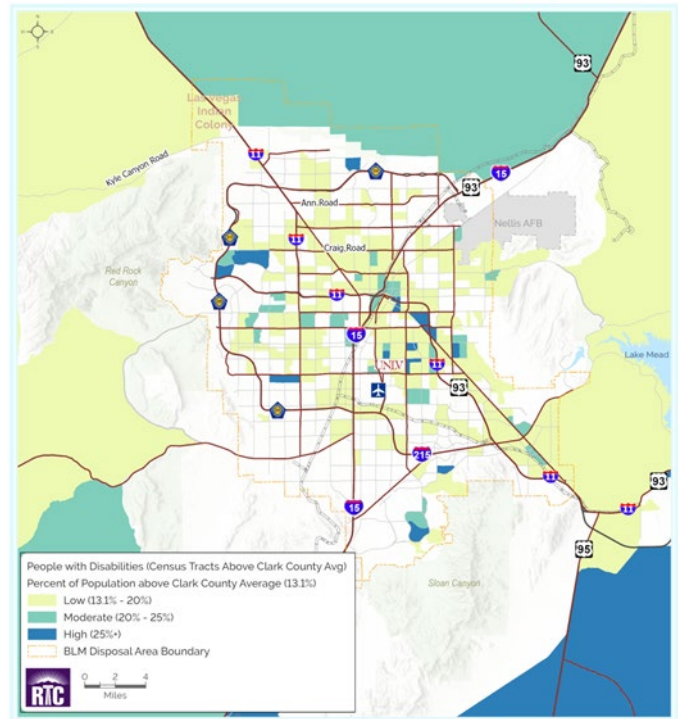
Approximately 13.1% of Clark County's population experiences limited English proficiency (LEP) and self-identifies as "speaks English less than well." Most tracts with above-average LEP populations are concentrated in the urban core of the region. Notably, a cluster of tracts with elevated percentages of LEP populations are on the east side of the RTC planning area, north of I-515 and east of I-15.

Figure 7: Required Populations: Vulnerable Age Groups



On average, approximately 38.2% of the population in Clark County falls within a vulnerable age group, which includes children under 18 and adults aged 65 and older. The distribution of tracts with above-average populations is widespread across the region, with many tracts including populations with vulnerable ages just above the average.

Figure 8: Required Populations: People with Disabilities



The distribution of tracts with above-average concentrations of these individuals is scattered across the region.

Justice40

In 2021, Executive Order (EO) 14008 *Tackling the Climate Crisis at Home and Abroad* created the Justice40 initiative, which aims to address environmental and economic disparities in disadvantaged communities by ensuring that 40% of federal investments in climate and clean energy benefit these underserved areas. EO 14008 defines disadvantaged communities as those that are marginalized, underserved, and overburdened by pollution. These individuals or communities often experience negative outcomes, such as unemployment, poor health, and limited access to essential services. Disadvantaged communities may also experience additional transportation-related burdens that can impact access to jobs, health care, education, and other services.

Justice40 outlined an approach to define “disadvantaged communities” and develop a technical tool set to track the impacts and benefits of transportation investments on disadvantaged communities. Future baseline metrics will allow federal agencies to calculate, monitor, and track federal transportation spending in disadvantaged communities to meet the 40% spending threshold. Local agencies are encouraged to utilize the Justice40 tool set and metrics when applying for federal funding to easily indicate federal spending going toward communities identified as disadvantaged. Agencies may use their own data and metrics to prioritize certain communities within the set of disadvantaged communities identified by the Justice40 tools.

The Council on Environmental Quality created the Climate and Economic Justice Screening Tool (CEJST), which identifies disadvantaged communities across the United States based on indicators of environmental, health, and economic burdens. CEJST burdens are grouped into categories that were informed by Justice40 investment focus areas, including climate change,

energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. An interim CEJST guidance memo was released in 2021, followed by comprehensive guidance released in November 2022. The methodology described below and used in this analysis is CEJST Version 1.0. The U.S. Department of Transportation (USDOT) developed an additional equity tool under Justice40 that was not included in this analysis due to overlap with data already included in the CEJST tool.¹

CEJST highlights disadvantaged census tracts across all 50 states, the District of Columbia, and the U.S. territories. Communities are considered disadvantaged if they meet any of the following criteria:

- ▶ They are within census tracts that meet the thresholds for at least one of the tool’s categories of burden.
- ▶ They are within the boundaries of federally recognized tribes. If a census tract does not meet the thresholds for any of the burden categories but is a part of the tract contains tribal land, it is considered “partially disadvantaged.”
- ▶ They are within a tract that is completely surrounded by disadvantaged communities and are at or above the 50th percentile for low income.

Datasets for each burden category of the CEJST tool are summarized in Table 4. The map in Figure 9 identifies tracts identified by CEJST as disadvantaged communities.

¹ The USDOT Equitable Transportation Community (ETC) Explorer tool provides additional details into the transportation disadvantage component of CEJST through an additional “transportation insecurity” measure. ETC Explorer allows users to understand how to mitigate or reverse transportation projects that may burden disadvantaged communities.

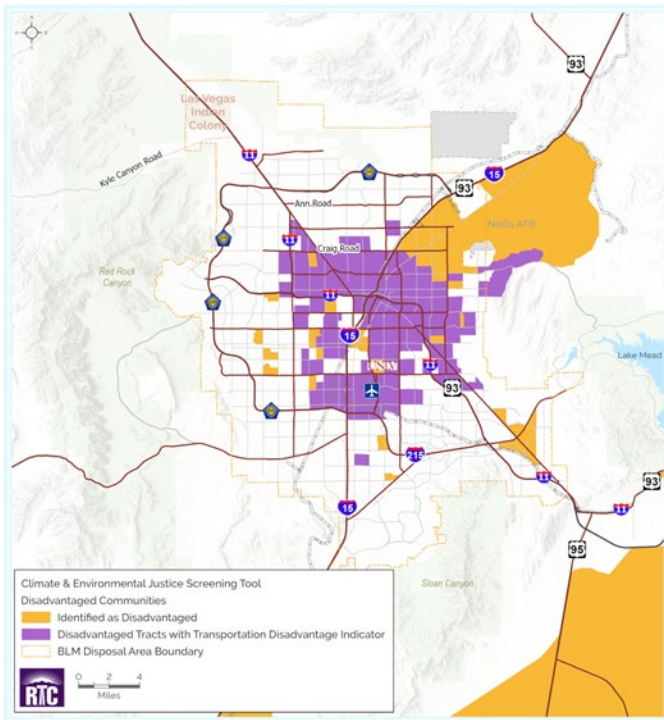
Table 4: Justice40 – CEJST Datasets

Burden Category	Datasets and Thresholds
Climate Change	Are at or above the 90th percentile for expected agriculture loss rate OR expected building loss rate OR expected population loss rate OR projected flood risk OR projected wildfire risk AND are at or above the 65th percentile for low income.
Energy	Are at or above the 90th percentile for energy cost OR particulate matter (2.5 microns or less in size [PM _{2.5}]) in the air AND are at or above the 65th percentile for low income.
Health	Are at or above the 90th percentile for asthma OR diabetes OR heart disease OR low life expectancy AND are at or above the 65th percentile for low income.
Housing	Experienced historic underinvestment OR are at or above the 90th percentile for housing cost OR lack of green space OR lack of indoor plumbing OR lead paint AND are at or above the 65th percentile for low income.

Burden Category	Datasets and Thresholds
Legacy Pollution	Have at least one abandoned mine land OR formerly used defense sites OR are at or above the 90th percentile for proximity to hazardous waste facilities OR proximity to Superfund sites (National Priorities List) OR proximity to Risk Management Plan facilities AND are at or above the 65th percentile for low income.
Transportation	Are at or above the 90th percentile for diesel particulate matter exposure OR transportation barriers OR traffic proximity and volume AND are at or above the 65th percentile for low income.
Water and Wastewater	Are at or above the 90th percentile for underground storage tanks and releases OR wastewater discharge AND are at or above the 65th percentile for low income.
Workforce Development	Are at or above the 90th percentile for linguistic isolation OR low median income OR poverty OR unemployment AND more than 10% of people aged 25 years or older whose high school education is less than a high school diploma.

Map Overlays

Figure 9: CEJST Disadvantaged Communities



In Clark County, 41% of census tracts were identified as disadvantaged communities, as depicted by the orange shading on the map. A significant concentration of these communities exists within the urban core of the region. Notably, the majority of disadvantaged communities in the county are specifically affected by transportation burdens, with 76% of the disadvantaged tracts exhibiting this indicator, as shown by the purple shading on the map.

Communities of Concern

The CHS was developed by the RTC for the *Southern Nevada Transportation Impacts on Health* plan. CHS integrates population characteristics from three categories – vulnerability, transportation-related health risk, and health-related transportation access – and classifies populations by block group (Figure 10). Lower community health scores signify areas that may have health-related risks as they relate to transportation.

Figure 10: RTC Community Health Score Criteria Categories



The RTC uses CHS to identify communities of concern and evaluate projects outlined in planning documents, including the RTP and the TIP. Communities of concern guide decision makers to ensure that appropriate resources are allocated toward vulnerable communities.

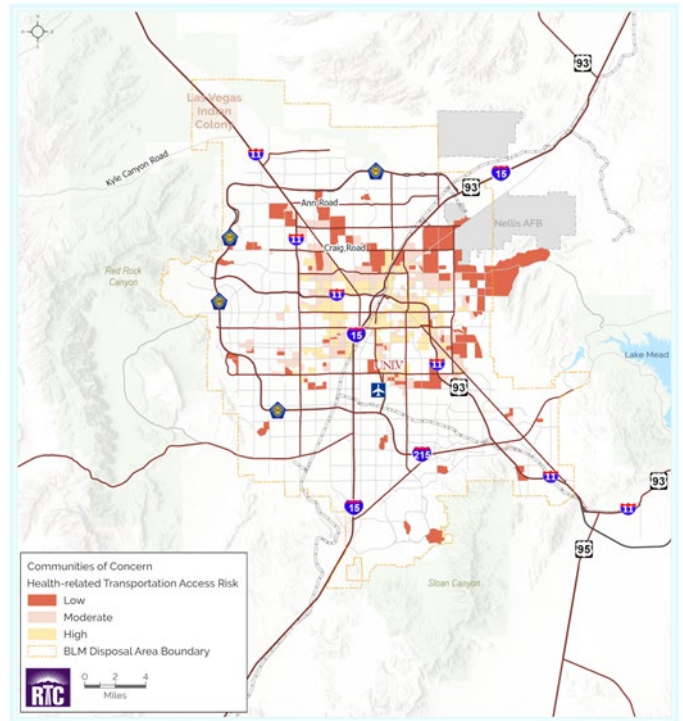
CHS scores are aggregated using all criteria from all three categories – vulnerability, transportation-related health risk, and health-related transportation access – and provide a score from 1 to 100 (Table 5). Each category is weighted equally. Communities of concern were classified as census block groups with a CHS scores of 36 or less. The map in Figure 11 identifies communities of concern.

Table 5: RTP – Communities of Concern Datasets

Index	Category	Datasets
Vulnerability Index	Chronic health condition prevalence	Estimated diabetes, high blood pressure, and coronary heart disease, asthma
	Social equity	Chronic illness
Transportation-Related Health Index	Traffic safety	Crashes by user type and most serious injury
	Environmental exposure	Ozone, PM _{2.5} , adaptive capacity (heat)
	Physical inactivity	Short trips, leisure walks
Health-Related Transportation Accessibility	Walkability	Walkability
	Bicycle network access	Miles of existing bike lanes and paths

Index	Category	Datasets
	Transit access	Transit service value
	Health-related goods and services	Food access, medical access
	Job access	Auto-based job access, transit-based job access
	Greenspace access	Tree canopy, parks, shared-use paths

Figure 12: Health-Related Transportation Access Risk



Map Overlays

Figure 11: Communities of Concern

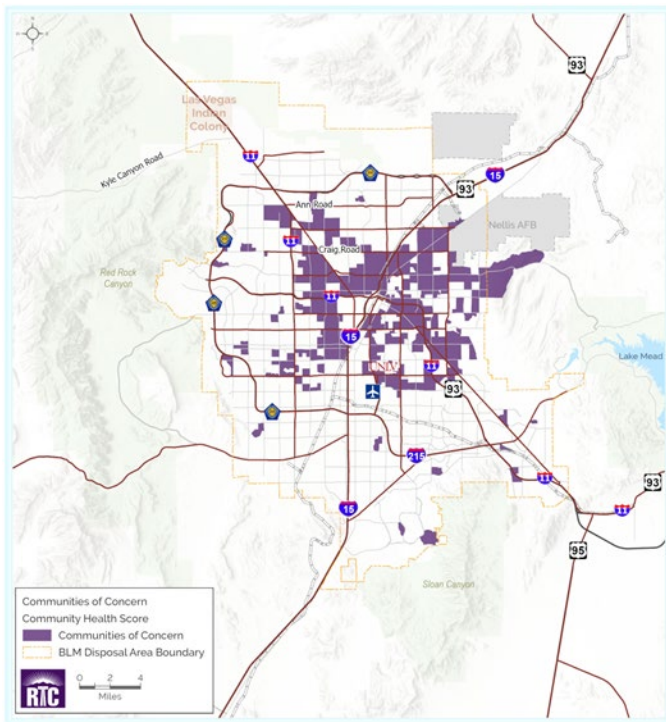


Figure 13: Transportation-Related Health Risk

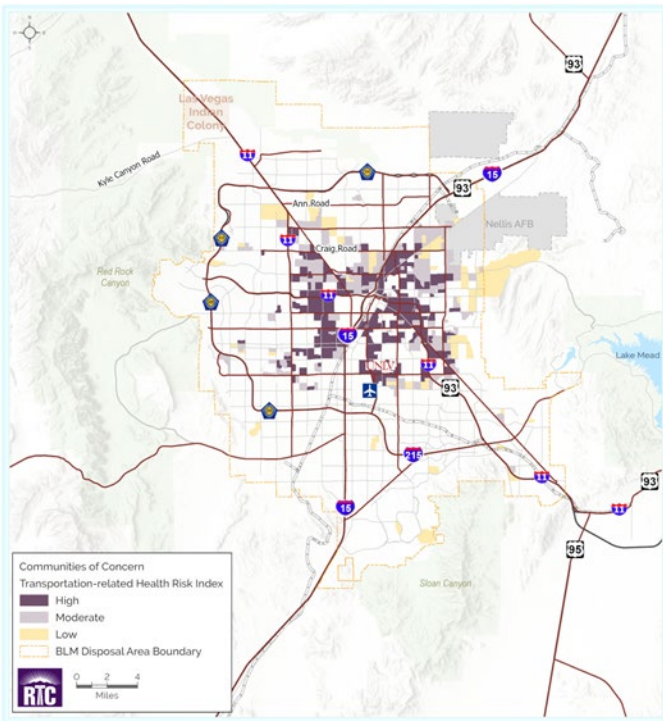
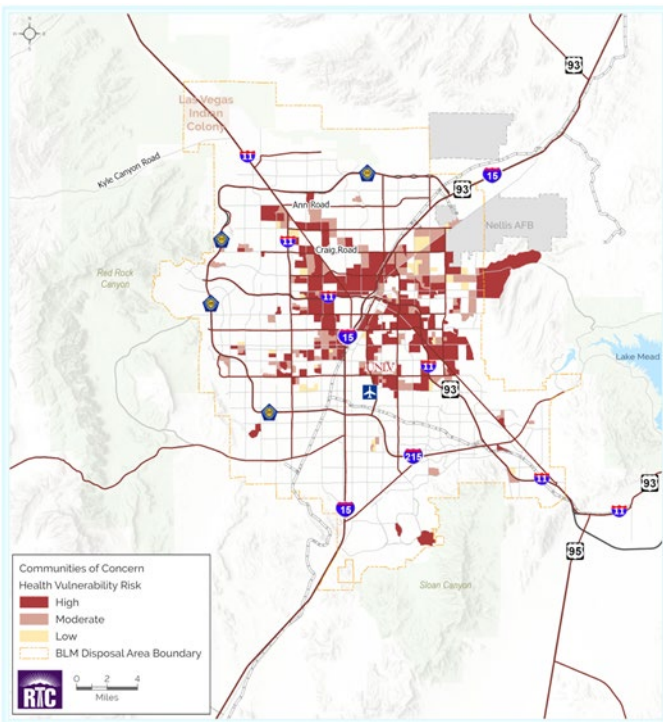


Figure 14: Health Vulnerability Risk



Project Screening Analysis

CEJST and communities of concern play a crucial role in informing transportation planning efforts. By identifying communities experiencing environmental and socioeconomic burdens, it helps decision makers prioritize equitable and sustainable transportation solutions. For instance, when developing the RTP, understanding which areas are disproportionately affected allows for targeted investments in transit, infrastructure, and mobility options.

The project benefits calculator, which was used to evaluate proposed projects, included an equity priority score. Projects were assigned an equity priority score based on whether they are located fully or partially within areas identified as communities of concern. Investments without a fixed location, such as purchasing new transit buses, were not included in this scoring process.

Based on the initial call for projects results, 42 of the projects submitted (33%) were located in RTC-identified communities of concern. These projects represent almost \$1.5 billion in investments, or 42% of all requested RTP funds. Table 6 summarizes the overlap between projects receiving federal funds in the RTP and locations identified as communities of concern. Table 7 summarizes the mileage of planned projects in tracts by demographic characteristics.

Table 6: RTP – Proposed RTP Investment in Communities of Concern

	Number of Projects	Project Value (millions)
Communities of Concern	42	\$1,461
Other Areas	87	\$2,036
Percentage in Communities of Concern	33%	42%

Table 7: Regionally Significant Projects in Tracts with Above-Average Percentages of Identified Populations

Indicator	Tracts with Above-Average Percentages of Identified Populations	
	Total Project Miles	Percentage of All Projects in Above-Average Tract
Low Income	128	81%
Minority	126	80%
Limited English Proficiency	106	73%
Vulnerable Ages	116	86%
People with Disabilities	130	87%

Figure 15 shows the planned Let's Go 2050 RTP projects and the communities of concern.

Figure 15: Proposed Project and Communities of Concern, 2027-2029

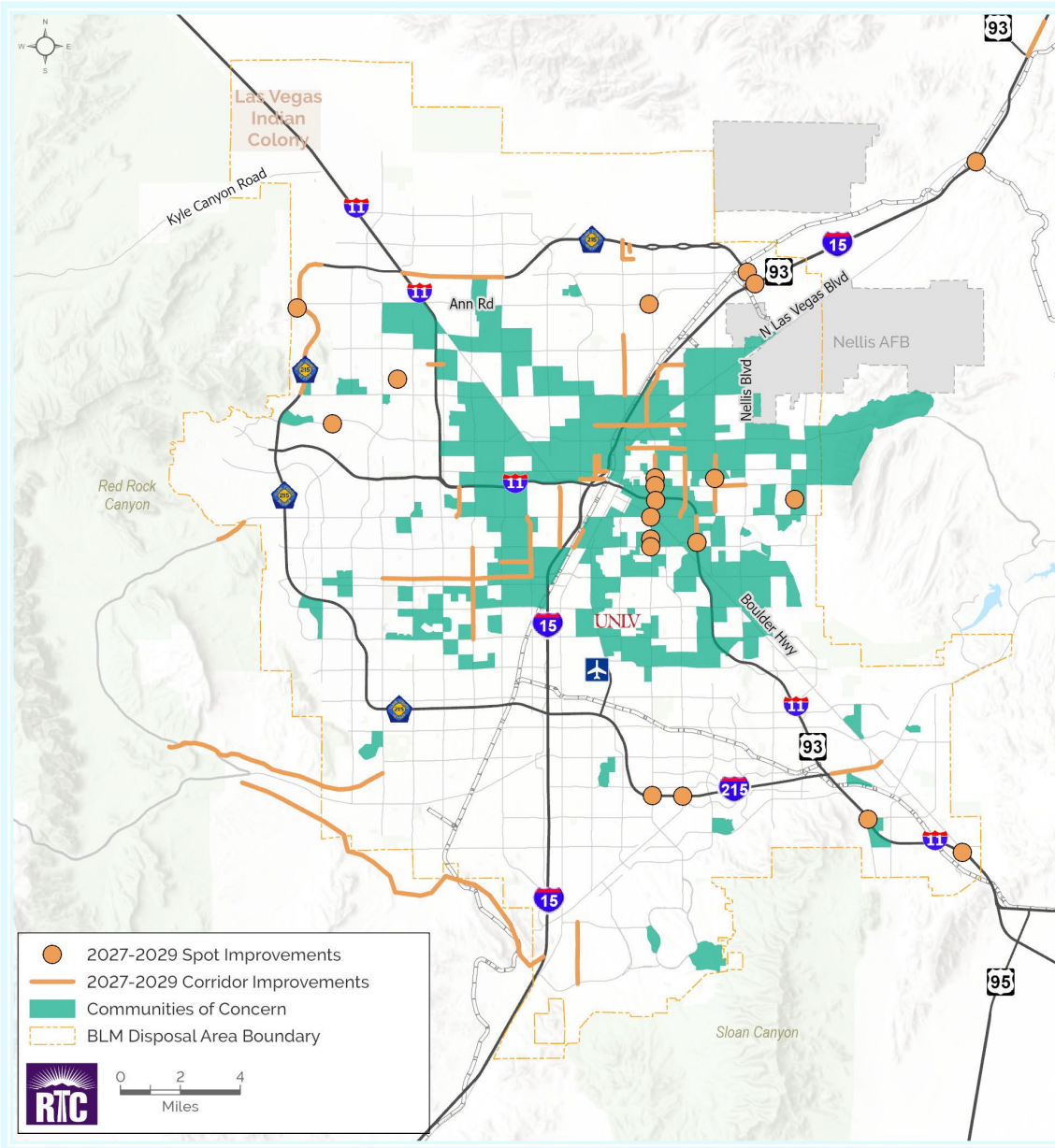


Figure 16: Proposed Project and Communities of Concern, 2030-2050

