

APPENDIX K: ENVIRONMENTAL ASSESSMENT

Environmental Assessment of Constrained Plan

Consistent with MAP-21 planning factors, an assessment of the impact of implementing Imagine Central Arkansas' financially constrained transportation plan upon the natural and built environments was completed. The underlying assumption of this assessment is based on the understanding that the constrained transportation plan is comprised of a specific list of transportation improvement projects for the first ten years of the plan period only; and that all remaining financial resources dedicated to specific, grouped funding categories is set aside for the rehabilitation, reconstruction and maintenance of the existing transportation systems - roadway, transit and non-roadway therein identified. The addition of any specific project to the plan may initiate a reassessment and/or rewriting of this environmental assessment including at TIP development. The location of minority and low income populations within the region is included in order to assist in the determination of environmental justice issues related to disproportionately high and adverse health and environmental impacts of the plan upon said populations.

Environmental Assessment of Imagine Central Arkansas

The Moving Ahead for Progress in the 21st Century Act (MAP-21) requires that seven planning factors be considered in development of regional transportation plans. They are:

1. Support the economic vitality of the metropolitan planning area; especially by enabling global competitiveness, productivity and efficiency.
2. Increase the safety and security for the transportation system for motorized and non-motorized users.
3. Increase the accessibility and mobility options available to people and for freight.

4. Protect and enhance the environment, promote energy conservation and improve the quality of life, and promote consistency between transportation improvements and local planned growth and economic development patterns.
5. Enhance the integration of connectivity of the transportation system, across and between modes, for people and freight.
6. Promote efficient system management and operation.
7. Emphasize the efficient preservation of existing transportation system.

Imagine Central Arkansas' Vision, Goals and Objectives were developed taking these factors into account and this section attempts to assess the environmental implications of implementing said plan on the regional area.

Air Quality

Stated Goal is to: Maintain good air quality as measured by attainment with the Clean Air Act pollution standards.

In 2010, central Arkansans generated approximately 14.3 million tons of equivalent carbon dioxide units (CO₂e) and consumed a total of 44.6 billion kilowatt hours (kWh) of energy. The following chart presents the distribution of CO₂e for each sector evaluated in the inventory. The largest percentage of CO₂e emissions was from the transportation sector (32.4%). Overall energy consumption of the transportation sector was also the highest.¹

While Imagine Central Arkansas endorses policies that will ultimately improve air quality through promoting intensification of activities and uses in the region's urban cores and nodal subdistricts to reduce trip making and trip lengths, embracing new energy efficient technologies both in transportation and construction, supporting greater transit deployment

and accessibility and active modes of transportation, the region currently teeters on the edge of still being declared in non-attainment by the EPA. Central Arkansas can attribute its precarious position to our overreliance on the automobile and urban sprawl that has accompanied decades of suburbanization. This disconnect between land use and transportation policies has resulted in our residents having one of the longest average commutes in the nation. Absent continued development and deployment of alternative energy sources for transportation purposes and/or increasing fleet fuel efficiency standards, the

combination of these commutes and the preference for suburban/exurban living ensure that additional amounts of harmful emissions will be spewed into the air. Metroplan estimates that total vehicle miles traveled will increase by 8 million per day (36%) for the emerging trend scenario and 7 million (32%) for the vision scenario. The Imagine Central Arkansas plan assumes that both deployment of alternative energy sources and increasing fuel efficiency will continue to progress during the plan period sufficiently enough to keep the region within attainment status, a reduction of 12.5 %.

Table K-1. Little Rock-North Little Rock-Conway Metropolitan Area Air Quality Statistics.

	2012	2013	2014*	EPA Standard
Carbon Monoxide (1 hour)	1.9 ppm	1.4 ppm	1.4 ppm	35 ppm
Carbon Monoxide (8 hour)	1.4 ppm	1 ppm	1 ppm	9 ppm
Nitrogen Dioxide (1 hour)	55 ppb	47 ppb	45 ppb	100 ppb
Ozone (1 hour)	0.09 ppm	0.08 ppm	0.07 ppm	0.12 ppm
Ozone (8 hour)	0.08 ppm	0.07 ppm	0.061 ppm	0.075 ppm
Sulfur Dioxide (1 hour)	10 ppb	7 ppb	11 ppb	75 ppb
Sulfur Dioxide (24 hour)	3 ppb	3 ppb	4 ppb	140 ppb
Fine Grain Particulates PM2.5 (24 hour)	27 ug/m3	29 ug/m3	26 ug/m3	35 ug/m3
Fine Grain Particulates PM2.5 (Annual Wtd. Mean)	11.6 ug/m3	11 ug/m3	9.6 ug/m3	12.0 ug/m3
Large Grain Particulates PM10 (24 hour)	36 ug/m3	61 ug/m3	34 ug/m3	150 ug/m3

Source: United States Environmental Protection Agency – Air Quality Statistics (<http://www.epa.gov/airdata/>) *(Annual statistics for 2014 are not final until May 1, 2015)

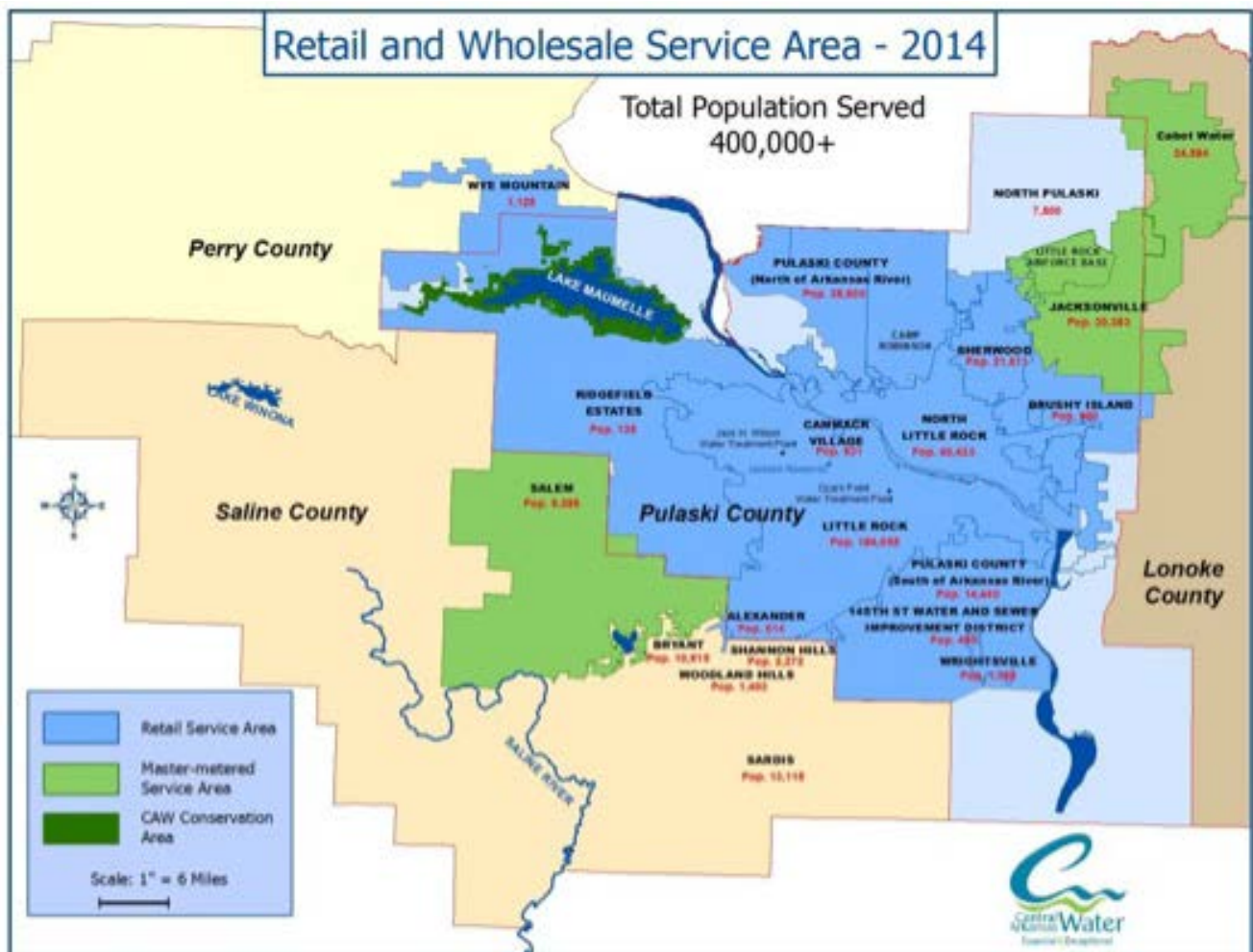
Central Arkansans' dependence on the automobile, fossil fuels, and preference for suburban living not only are harmful to the environment, they also come at an enormous economic toll for the region, where residents must spend ever-increasing percentages of their household budgets on transportation to maintain personal mobility. Several Imagine Central Arkansas goals and objectives policy recommendations with respect to land use, housing and transportation are directed at helping change these conditions by 2040.

Water Quality

Stated Goal is to: Reduce the growth in non-point source urban runoff by minimizing the amount of paved surfaces (i.e., roads and surface parking lots).

This objective is best accomplished through local action. Consequently, the plan addresses water quality by encouraging local governments "to adopt land development regulations that reduce pavement requirements, encourage more structured parking

Figure K-1. 2013 Central Arkansas Water Service Area 2014



Source: Central Arkansas Water (<http://www.carkw.com/about-us/service-area-maps/>)

Table K-2. 2013 Central Arkansas Water – Water Quality Levels

Contaminant	Violation Status (Y/N)	Levels Detected		Maximum Contaminant Level (MCL)	Major Contaminant Source
		Ozark Point WTP (OP)	Jack Wilson WTP (W)		
Coliform Bacteria	N	1.4 % highest Monthly Percentage	1.4 % highest Monthly Percentage	5%	Naturally present in environment
Turbidity	N	.29 NTU (highest yearly sample)	.16 NTU (highest yearly sample)	1 NTU	Soil Runoff
Fluoride	N	.72 ppm Annual Average	.66 ppm Annual Average	4 ppm	Erosion, water additives, and discharge from fertilizer
Lead	N	.004 ppm	.004 ppm	.015 ppm	Corrosion of household plumbing systems and erosion of natural deposits
Copper	N	<0.20 ppm	<0.20 ppm	1.3 ppm	Corrosion of household plumbing systems and erosion of natural deposits
Chlorine	N	.58 ppm avg.	.58 ppm avg.	4 ppm	Water additive used to control microbes

Source: Central Arkansas Water, Water Quality Report 2013

and provide natural areas to filter paved surface run-off." The growth in non-point source urban run-off from paved surfaces can be reduced through the proactive efforts of CARTS participants. If no proactive efforts are undertaken to minimize additional paved surfaces and/or adopt low-impact urban design policies, the implementation of the financially constrained transportation plan will likely increase total pavement area beyond what would otherwise occur under the no-build scenario, resulting in a net increase in non-point source urban runoff from paved surfaces. The additional paved surface area due to implementation of the constrained plan is relatively small compared to the additional paved surface area of local streets, driveways and parking lots that are added as new subdivisions are developed, which underscores the need to address this environmental objective through local development regulations. The

emerging trend scenario increases the new area of impervious surface by 13,600 acres while the regional vision reduces this total by one fifth or 20%, to 10,800 new acres.

The adoption of zoning and development regulations by Pulaski County in 2013 to protect the water quality of Lake Maumelle, the region's primary water source, from non-point source pollution was a milestone locally. The constrained transportation plan complements this effort by directing major transportation investments away from the watershed. However, this is debatable as widening/improving Highway 10, which is on the constrained plan, may actually increase development pressure on the Lake Maumelle watershed.

The majority of metropolitan residents are served by one of twenty-six (26) water systems that comprise the Mid-Arkansas Water Alliance (MAWA). MAWA is a not-for-profit membership corporation organized for the purpose of requesting water allocations from U.S. Army Corps of Engineers' lakes (Greers Ferry Lake and Lake Ouachita). Several counties, cities, and towns make up the alliance and its membership includes entities located in the counties of Cleburne, Conway, Faulkner, Garland, Lonoke, Pulaski, Perry, and Saline. The Mid-Arkansas Water Alliance works in partnership with the Saline Watershed Alliance and the Lonoke-White Public Water Authority to find ways to best allocate water resources in the region, at the lowest reasonable cost. Together, the three entities represent a quarter of the state of Arkansas's population.

Central Arkansas Water (CAW) operates two of the largest water treatment facilities in the region: The first, the Jack H. Wilson Water Treatment Plant (indicated as "W" on the chart) serves areas of Little Rock and Pulaski County west of University Avenue, and the areas of North Little Rock north of Interstate 40. The second, the Ozark Point Water Treatment Plant (indicated as "OP" on the chart) serves areas of Little Rock and Pulaski County east of University Avenue, and the areas of North Little Rock south of Interstate 40. The following chart shows water quality measurements at both treatment facilities.

SENSITIVE LANDS

Stated Goal is to: Reduce development impacts on sensitive environmental areas (wetlands, aquifer recharge areas, surface stream buffers, etc.) that can be attributed to transportation facilities through better transportation facility siting and design.

Figure X identifies sensitive environmental areas in the CARTS area, as well as the listed projects for the first ten years included in the constrained transportation plan. As projects proceed towards implementation, project sponsors should use appropriate facility design features and/or mitigation measures to reduce any adverse environmental impacts. In this regard,

the use of "context sensitive design" principles can help address various environmental concerns during project planning and development. The following list identifies some of the sensitive lands that, if present, may need to be considered during project planning and development.

- Cemeteries
- Quarries, Gravel Pits & Mines
- Perennial Stream Buffers
- Lakes and Protected Watersheds
- Parks and Wildlife Management Areas
- Designated Natural Areas
- Steep Slopes (15 Degrees or greater)
- 100 Year Flood Plains & Wetlands
- Military Installations
- High Value Agricultural Land
- Developed Residential & Other Areas
- Archeological/Historic Sites & Districts

Imagine Central Arkansas seeks to preserve and protect sensitive environmental areas in a number of ways. The plan supports the promotion and use of the "natural environment" to provide for physical activity, affordable entertainment, and scenic views." The plan also notes the importance that preserving natural landscapes plays in protecting the region's watersheds and ensuring water quality. *Imagine Central Arkansas* calls for increased development density in the region, which supports efficient land use and reduced trip lengths, revitalizes urban cores, encourages the redevelopment and preservation of historic areas and structures, promotes exercise and healthier lifestyles, and increases activity and equitable access to vital resources. Many of the recent and on-going projects of the Arkansas Highway Transportation Department and Central Arkansas Transit Authority are investments in improving existing infrastructure. The effort toward maintaining, retrofitting, and efficiently using what exists before creating new transportation links suggests that Central Arkansans are not only concerned with financial accountability but with preserving and protecting the environment and their quality of life.

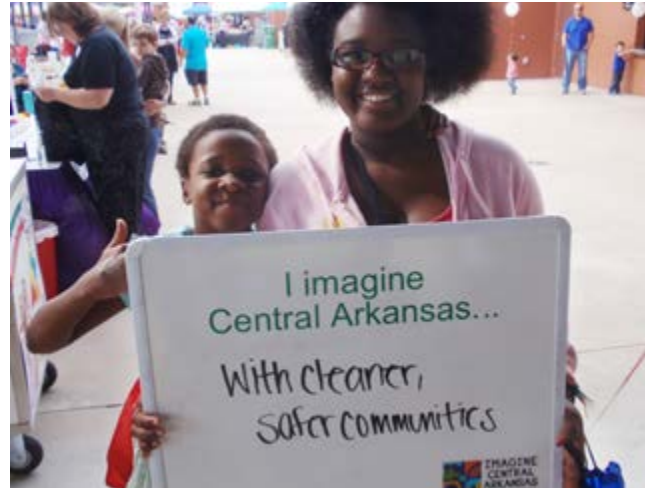
Figure K-2: Map of Environmentally Sensitive Areas & 10 year Projects



Healthy and Safe Communities

Stated goal is to: Create and support the conditions that will enable Central Arkansas to become known as the healthiest and safest community in America.

While minority and low-income residents are disproportionately more likely to reside in the environmentally burdened areas, renewed interest and development projects in downtown Little Rock and North Little Rock suggest that these areas are ripe for revitalization. The physically disabled and elderly are of particular concern in the areas of housing, transportation and access. Their populations are growing in the metropolitan area and are disparately impacted by mobility impairments in the region. Impediments, such as the lack of sidewalks, hilly terrain and poorly planned neighborhoods, are not easy barriers for those without disabilities to transcend. For many of the disabled, such obstacles



are insurmountable, without assistance. As a result, these populations have extremely limited choices regarding how they travel, when they travel and where they live. The disabled and elderly in the metropolitan area are more likely to be dependent on family and public transit than others in the region and are therefore acutely susceptible to route, time, or price changes in the public transit system.



The plan seeks to improve access and mobility for both the dependent and general populations by directing greater transportation investments over the plan period to the rehabilitation and reconstruction of existing systems, both roadway and transit. The plan also recognizes that gains in technology in driverless cars, personal mobility devices and public transportation will greatly benefit both populations.

Environmental Justice

On February 11, 1994, President William J. Clinton signed Executive Order 12898. The executive order called for the federal government to consider the environmental impact that federal actions have on minority and low-income populations and called for “federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. The order also directs each agency to develop a strategy for implementing environmental justice. The order is also intended to promote nondiscrimination in federal programs that affect human health and the environment, as well as provide minority and low-income communities’ access to public information and participation.”²

President Clinton’s order is viewed as a milestone by the environmental justice community. The order not only made the federal government accountable for its contributions to adverse environmental impacts in these communities, it also required that federal agencies conduct assessments and mitigate adverse effects for which they are responsible.

Minority and low income communities are sometimes viewed as “sacrificial zones” or “paths of least resistance.” The acquisition of land in these communities is generally less expensive than in other areas in cities and in many such communities, residents’ lack the resources, political currency, and the organization required to mount a successful defense to the placement of undesirable businesses, resources, and shared services in their neighborhoods. Over time, these communities have become the repositories of a disproportionate percentage of their metropolitan area’s land-fills, jails, chemical plants, incinerators, garbage dumps, and sewage treatment centers. The proliferation of these burdensome resources in a single area dramatically reduces property values, discourages other forms of commercial development and exposes the residents of these areas to substantially higher concentrations of toxins.

For the purposes of this planning effort, mapping was done to depict the distribution of “benefits and burdens” (i.e., of the constrained plan recommendations) to low-income and minority CARTS area residents of transportation projects. Additional information on low-income and minority residents of Central Arkansas can be found in the State of Region Report (Chapter 4) and *Fair Housing Assessment*.

METRO 2030 Constrained Plan

For the purpose of visual simplification, the map depicts census tracts by median household income and minority/majority tracts. “Employment centers” are comprised of traffic analysis zones that have an employment density of 1000 per square mile or greater.

Roadway

Roadway projects in the Constrained Plan are comprised of the following types.

- Projects to preserve and maintain the existing network (bridges, reconstruction, railroad crossings;
- Projects that optimize traffic flow through intersection or interchange improvements; and
- Projects that add capacity (additional through lanes).

Several of the projects proposed within the 10 year plan are in areas where there are high concentrations of minorities and household incomes are far below the metropolitan median. The projects are vital investments in the infrastructure of the communities and provide connectivity for these communities to goods and services which are not currently available.

Largely, the expenditure of federal transportation funds will be determined through the TIP and selection of projects to receive maintenance and operations funding. Maintaining aging facilities within lower income and majority/minority tracts will be paramount in ensuring that these populations are not adversely affected by transportation investments.

²<http://www2.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice> (accessed on September 3, 2014)

Because concentrated poverty and race are so closely correlated in the region, a map showing environmental hazards in census tracts wherein poverty levels exceed twenty-five percent (25 %) closely resemble race based distributions of the same hazards. Concentrated poverty in the metropolitan area is confined to Pulaski County and is found predominately in the dense populations of Downtown Little Rock and North Little Rock. The highest concentrations of minorities are also found in these areas.

Transit

The Constrained Plan calls for maintaining the existing level of bus service. Figure K-1 depicts the current service area for CATA's fixed route and express bus service. The service area addresses most of the neighborhoods defined as low income or minority.

The following three tables explicate the current level of service. The financially constrained plan for Imagine Central Arkansas assumes no new revenue sources for transit service, therefore other than routine and normal adjustments made during an operating year CATA's existing service can be assumed to remain fairly flat during the plan period. While the financially constrained plan assumes no new revenue, it is the intent of this plan to pursue a dedicated transit revenue source to improve service within CATA's existing service area, expand limited express bus service, and to institute local bus service in Conway in the short-term with higher end services in the long-term.



Additionally, human services transportation coordination provisions should continue to improve transportation services for persons with disabilities, older adults, and individuals with lower incomes by ensuring that communities coordinate transportation resources provided through multiple federal programs. Coordination will enhance transportation access, minimize duplication of services, and facilitate the most appropriate cost-effective transportation possible with available resources.

The map at right (figure K-3) shows the location of transportation projects to be programmed over the next ten years in relation to majority minority and lower income areas. Many of the expected transportation projects are located in or near low income and minority communities. These projects, depending on how context-sensitively designed and implemented, represent infrastructure investments that can positively impact the lives of residents in these neighborhoods and throughout region by providing better access to employment centers and other resources.

Figure K-3 10 Year Project List with Minority Majority and Income by Census Tract

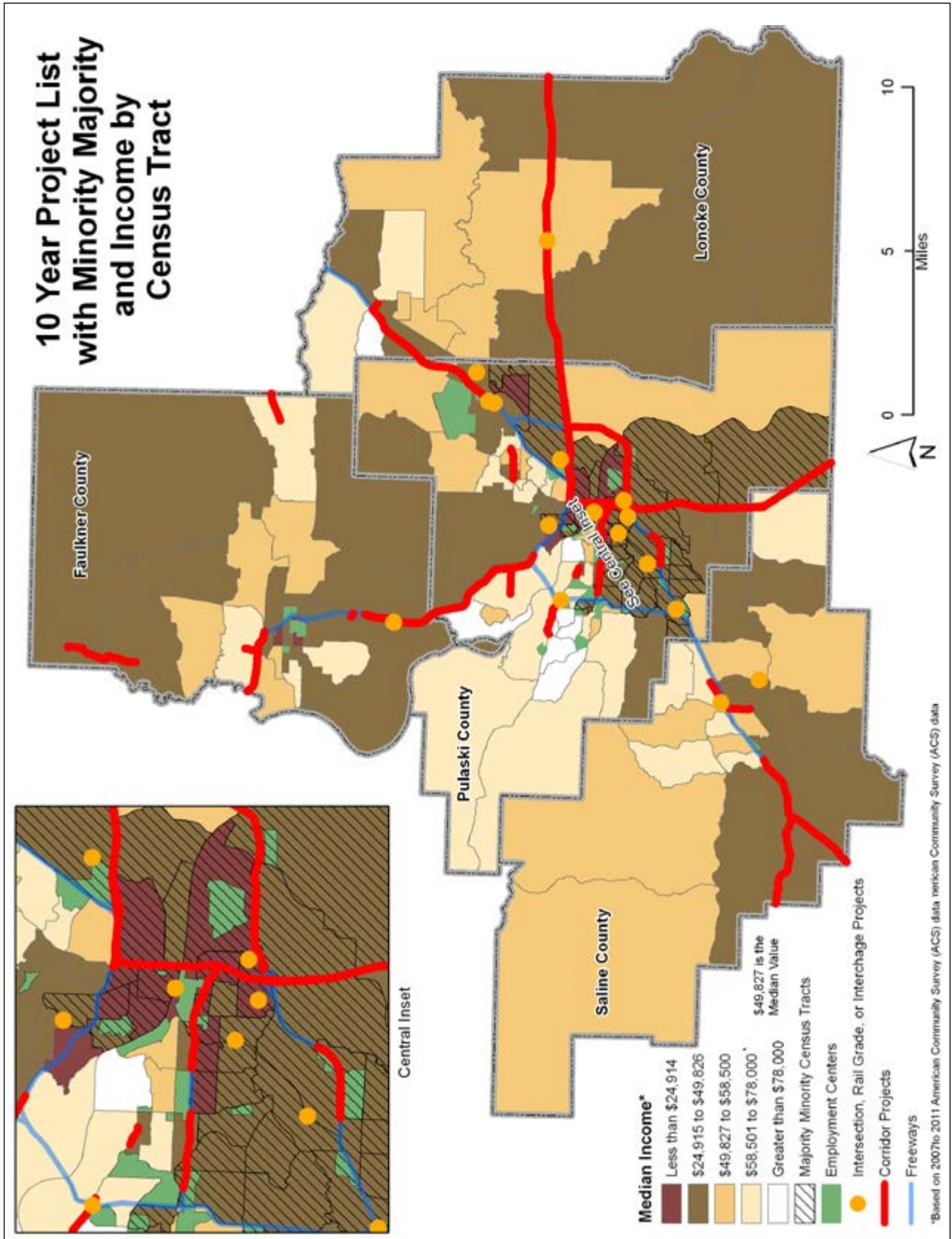


Figure K-4. CATA Bus Routes with Minority Majority and Income by Census Tract

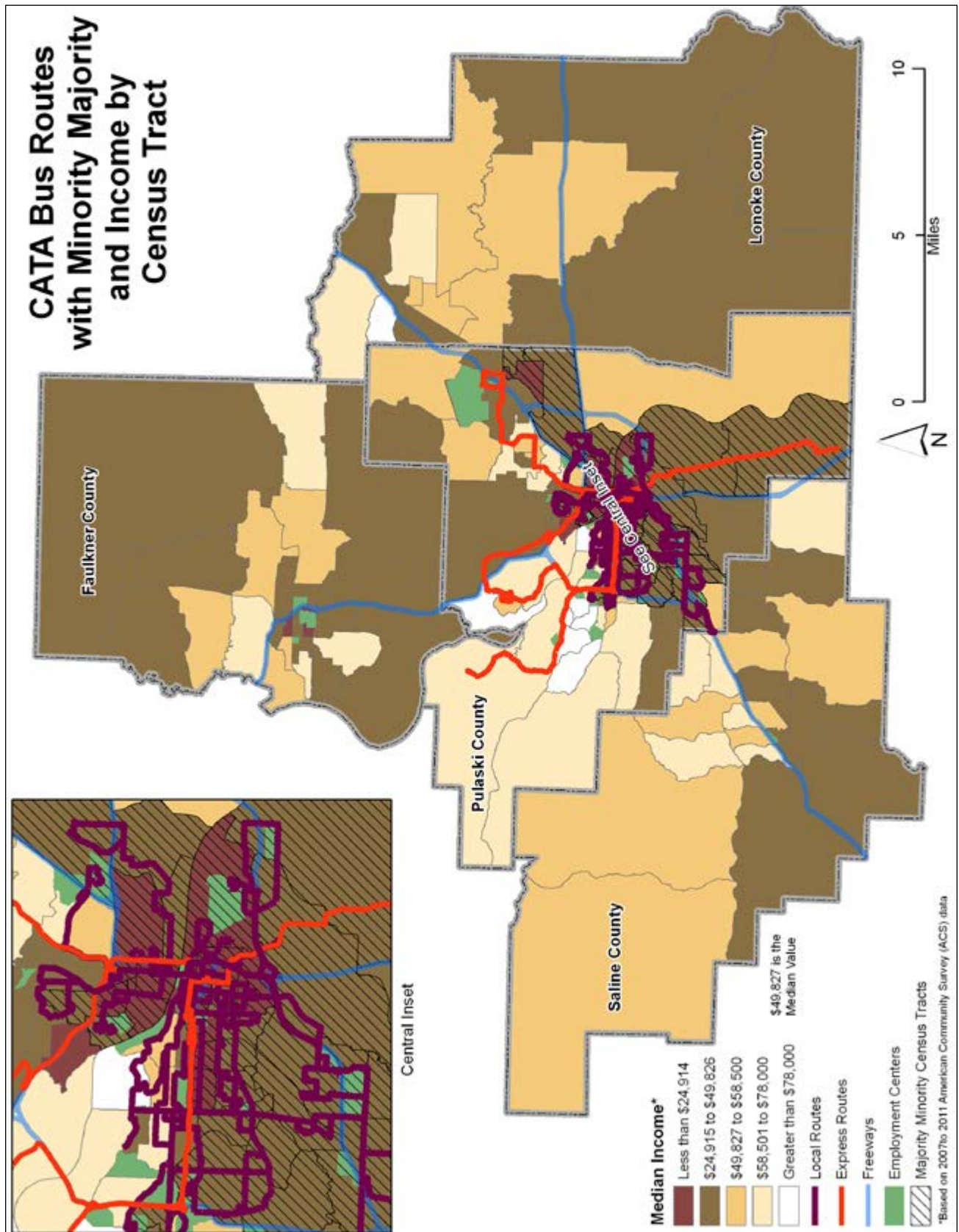


Table K-3. CATA Current Service Headways

Route	Route Name	Peak	Off-Peak
1	Pulaski Heights	:35	:35
2	South Main	:35	:35
3	Baptist Medical Center	:35	:35
4	Levy/Amboy	:35	:55
5	West Markham	:35	:35
6	Granite Mountain	:40	:40
7	East Ninth	:40	:40
8	Rodney Parham	:40	:40
9	West Central/Barrow Rd	:67	:60
10	McCain Mall	:30	:30
11	M.L. King	:40	:40
12	Presidential Library/East Sixth	:40	:40
13	Pulaski Tech	:30	:30
14	Rosedale	:35	:35
15	65th Street	:40	1:15
16	UALR	:30	:30
17	Mabelvale-Downtown	:40	:50
18	McAlmont	:35	:40
20	Airport/College Station	:60	:60
21	University Avenue	:45	:45
22	Mabelvale-Midtown	:40	:40
23	Baseline/Southwest	:50	:55

CATA schedules are not uniform, so there are different frequencies within peak hours and within off-peak hours. The above frequencies are average times during the peak and off-peak hours and are not necessarily exact.



Table K-4. CATA Service Hours by Route

Route	Route Name	Wednesday	Saturday	Sunday
1	Pulaski Heights	5:30a-7:14p	5:30a-7:14p	None
2	South Main	5:44a-8:30p	5:44a-6:47p	8:50a-4:30p
3	Baptist Medical Center	5:20a-8:52p	5:20a-7:14p	9:13a-4:50p
4	Levy/Amboy	5:21a-8:35p	5:21a-7:09p	None
5	West Markham	5:22a-8:48p	5:25a-7:05p	9:12a-4:41p
6	Granite Mountain	5:50a-6:57p	5:50a-6:57p	None
7	East Ninth	5:55a-8:26p	5:55a-6:45p	None
8	Rodney Parham	6:20a-8:44p	6:20a-6:05p	9:12a-4:40p
9	West Central/Barrow Rd	6:02a-8:36p	6:02a-6:36p	None
10	McCain Mall	5:30a-8:45p	5:30a-7:08p	9:17a-4:48p
11	M.L. King	5:43a-8:24p	5:43a-6:45p	8:48a-4:25p
12	Presidential Library/East Sixth	5:49a-6:51p	5:49a-6:51p	None
13	Pulaski Tech	5:30a-8:32p	5:30a-6:53p	8:34a-4:34p
14	Rosedale	5:18a-8:45p	5:18a-7:06p	9:12a-4:43p
15	65th Street	5:22a-7:08p	5:22a-7:04p	None
16	UALR	5:38a-8:53p	5:38a-6:58p	8:43a-4:55p
17	Mabelvale-Downtown	5:03a-7:03p	None	None
18	McAlmont	5:19a-8:33p	5:19a-6:56p	8:40a-4:53p
20	Airport/College Station	5:36a-8:29p	5:36a-6:47p	8:40a-4:28p
21	University Avenue	6:15a-7:02p	6:15a-7:02p	None
22	Mabelvale-Midtown	8:35a-9:08p	6:36a-6:33p	8:41a-5:12p
23	Baseline/Southwest	5:33a-8:38p	5:33a-7:00p	9:15a-4:42p

Race and Environmental Hazards

The majority of the metropolitan area's minorities reside in Pulaski County. Minorities are found in their highest concentrations in and around downtown Little Rock and North Little Rock, much of which was historically the region's industrial core. While the highest concentrations of environmental hazards are found in Pulaski County, they are not exclusively located in minority majority census tracts. The distribution of Pulaski County's hazards closely corresponds to active and historic industrial sites and rail yards. In each of the neighboring counties (Faulkner, Lonoke, and Saline) there is a consolidated area with higher levels of hazards than the surrounding area. These areas of high concentration however are typically limited to one or two census tracts and are located in areas where populations are substantially less dense.

Conclusion:

The data above provides a snapshot of the environmental conditions in the metropolitan area. Presently, water and air quality exceed the parameters established by the Environmental Protection Agency. Maintaining these resources over time, however, will depend greatly upon whether or not goals of Imagine Central Arkansas are sustained by the region's communities. By promoting denser living patterns, increased reliance on public and active modes of transportation, and improved stewardship of our resources, we reduce long term infrastructure costs, increase activity and connectedness, and provide healthier and more sustainable neighborhoods for all of the region's residents.

The maintenance of our environment also depends upon the committed environmental reforms of the neighboring metropolises of Dallas and Memphis, who are both major contributors to our increasing greenhouse gas emissions. These communities provide a variable in the environmental equation that residents of the region have very little control over. Central Arkansas' environmental future will also depend largely on whether residents maintain current trends or whether they realize the vision and goals established in Imagine Central Arkansas.