

MEMORANDUM

Date: December 12, 2022
To: Darren Anderson, Project Manager, Carson City Public Works
From: David Morrow, Senior Scientist NCE
Subject: East William Street - Environmental Justice Technical Memo

Carson City has retained NCE to conduct background research and database searches on behalf of the East William Complete Streets and Utility Undergrounding (project) to inform environmental and planning tasks that will need to be addressed during a future National Environmental Protection Act (NEPA) action. The area of focus for this technical memorandum is environmental justice, as described below.

PROJECT DESCRIPTION

The project is located in Carson City County, Nevada, south of Reno and Washoe Lake (**Figure 1**, figures are provided in **Appendix A**). The project area established for the project runs along roughly 1.5 miles of East William Street for a total size of roughly 29.5 acres (**Figure 2**). Most of the project improvements will be placed within existing rights-of-way. Permanent and temporary construction easements on up to 30 parcels are proposed. The permanent easements are required for pedestrian ramps, sidewalks, utilities, and signal modification improvements. The temporary construction easements are required for construction of sidewalk improvements, pedestrian ramps, bus stops, landscaping, lighting, driveway transitions, utilities, grading, and signal modifications (see staging areas in **Figure 2**).

The project will provide roadway, bicycle, pedestrian, safety, beautification, and utility improvements to East William Street, creating an efficient multimodal roadway along one of Carson City's primary commercial corridors. The project specifically includes pavement rehabilitation and reconstruction treatments throughout the corridor, access management infrastructure to improve safety and circulation for commercial driveways and side streets, enhanced street lighting, a signalized pedestrian crossing, bus stop amenities to support a planned transit line along the corridor, electric vehicle charging stations at Mills Park, sidewalk infrastructure to establish compliance with the Americans with Disabilities Act (ADA), traffic signal infrastructure upgrades, added bike facilities, landscaping and streetscape beautification, undergrounding of overhead power and communication lines and

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upgrades to water, sewer, and storm water utility systems, including low-impact-development (LID) storm water infrastructure.

Proposed project activities were evaluated for potential impact to environmental justice as described below.

PROJECT SETTING AND GOALS

The Project is in Carson City, the capital of Nevada. Carson City encompasses about 157 square miles, with a population of about 59,000 people. East William Street is a primary east-west road connecting the downtown area with US Highway 50 and auxiliary Interstate 580.

East William Street (Project) was once part of US 50 and was designed to carry high traffic volumes. With the completion of I-580, East William Street was relinquished to Carson City in 2009. The Project will reconstruct and rehabilitate East Williams Street using a Complete Streets design.

There are no sidewalks in the older residential neighborhood at the western end of the Project. The middle and eastern part of East Williams Street has sidewalks in some areas, but there are gaps, and the pedestrian environment is not ideal. There are minimal-to-no bicycle facilities in most of the Project area. East William Street serves as a primary entry to a large community park, Mill Park. Better multi-modal access, including transit improvements, is desired near the park. East Williams Street is also an important route for students walking or cycling to Carson High School.

The stated goals of Carson City are to upgrade East William Street to facilitate comfortable, convenient, and safe travel for pedestrians and cyclists; increase driver safety; improve vehicular access to abutting businesses; spur private investment in this important and vibrant commercial corridor; and prepare Carson City for future Smart City advancements.

ENVIRONMENTAL JUSTICE EVALUATION

FHWA requires evaluation of a project's potential for disproportionate impacts to residents and businesses in low-income communities and areas with high numbers of minority residents. The US EPA has recently updated EJScreen, which is an on-line tool that evaluates a wide range of environmental and social factors. Environmental factors focus on air pollution, underground tanks, hazardous material sites, and building concerns such as lead paint. Social factors include income, skin color, language, education, and age (very young and seniors). EJScreen helps identify communities that are subjected to high levels of pollution. Then, measures can be

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taken to prevent or mitigate development that may worsen health outcomes in disadvantaged communities.

ANALYSIS

Following EPA guidance, EJScreen model runs are typically performed for the project site and then at increasing distances in concentric circles. This allows for a comparison between the project site and nearby areas to see if there are disproportionate impacts. EJScreen was updated in October 2022 to enhance capabilities in some US Territories and expand EJ metrics. The model now considers five factors (two previously) to calculate a "*Demographic Index*." The factors considered are percent low-income, percent limited English-speaking, percent less than high school education, percent unemployed, and low life expectancy. (Source: [https://www.epa.gov/newsreleases/epa-launches-updates-environmental-justice-mapping-tool-ejscreen.](https://www.epa.gov/newsreleases/epa-launches-updates-environmental-justice-mapping-tool-ejscreen))

East William Street is a major east-west road approximately in the center of Carson City. At the western terminus is an area of single-family homes for a few blocks. Moving east, the road is lined with small businesses and restaurants. Major cross streets include N. Carson Street, Roop Street, and Saliman Rd. At the eastern terminus of the project is I-580, a major north/south freeway. These major roads are all local sources of air pollution such as PM_{2.5}. Three EJScreen model runs were performed to estimate if the East William Street improvements would disproportionately impact vulnerable populations close to the project compared to those farther away. Reports for these model runs are available in **Appendix B**.

The *Demographic Index* (DI) at each distance is as follows: 0.1 miles 37%; 0.5 miles 37%; and one mile 39%. The values vary by about 5%, which is not considered a significant change. Therefore, the proposed road upgrades will not significantly impact a low income or minority community because the project area DI is functionally the same as more distant areas.

EPA also recommends evaluating environmental indicators at or over the state's 80th percentile. "Proximity to superfund sites" is the one key environmental indicator for the project area that is above the Nevada 80th percentile. Percentile values ranged from the 91st percentile at 0.1 and 0.5 miles, to the 92nd percentile at 1 mile. These values are not significantly different. This Complete Street project will not change the proximity to superfund sites for nearby businesses or residents, and therefore there is no environmental justice impact.

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In a review of a previous draft of this memo, NDOT mentioned specific concerns that are addressed below. While these are not EPA environmental justice indicators per se, they are valid concerns.

- There are no expected changes to visual resources. The Sierra Nevada Mountain range will still be visible looking to the west. Some landscaping will be included in the project to make the corridor more attractive.
- During the construction of a specific road segment, the contractor will manage egress to minimize impacts to local businesses. The egress management plan is enumerated in the FHWA Categorical Exclusion checklist. Noise and dust control plans are also discussed in the Categorical Exclusion checklist. No residents or businesses will be permanently displaced – all major work is occurring within the existing right-of-way.
- The construction schedule will be determined by the contractor in coordination with Carson City closer to the start of work. The anticipated construction duration is approximately 12 months. The contractor will schedule work to minimize inconvenience to business and residents as outlined in the Categorical Exclusion checklist.

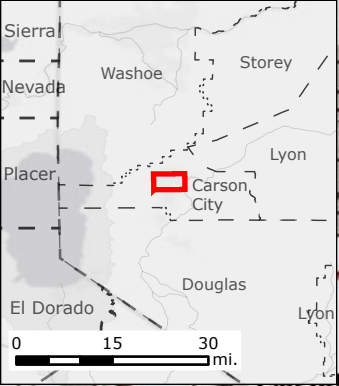
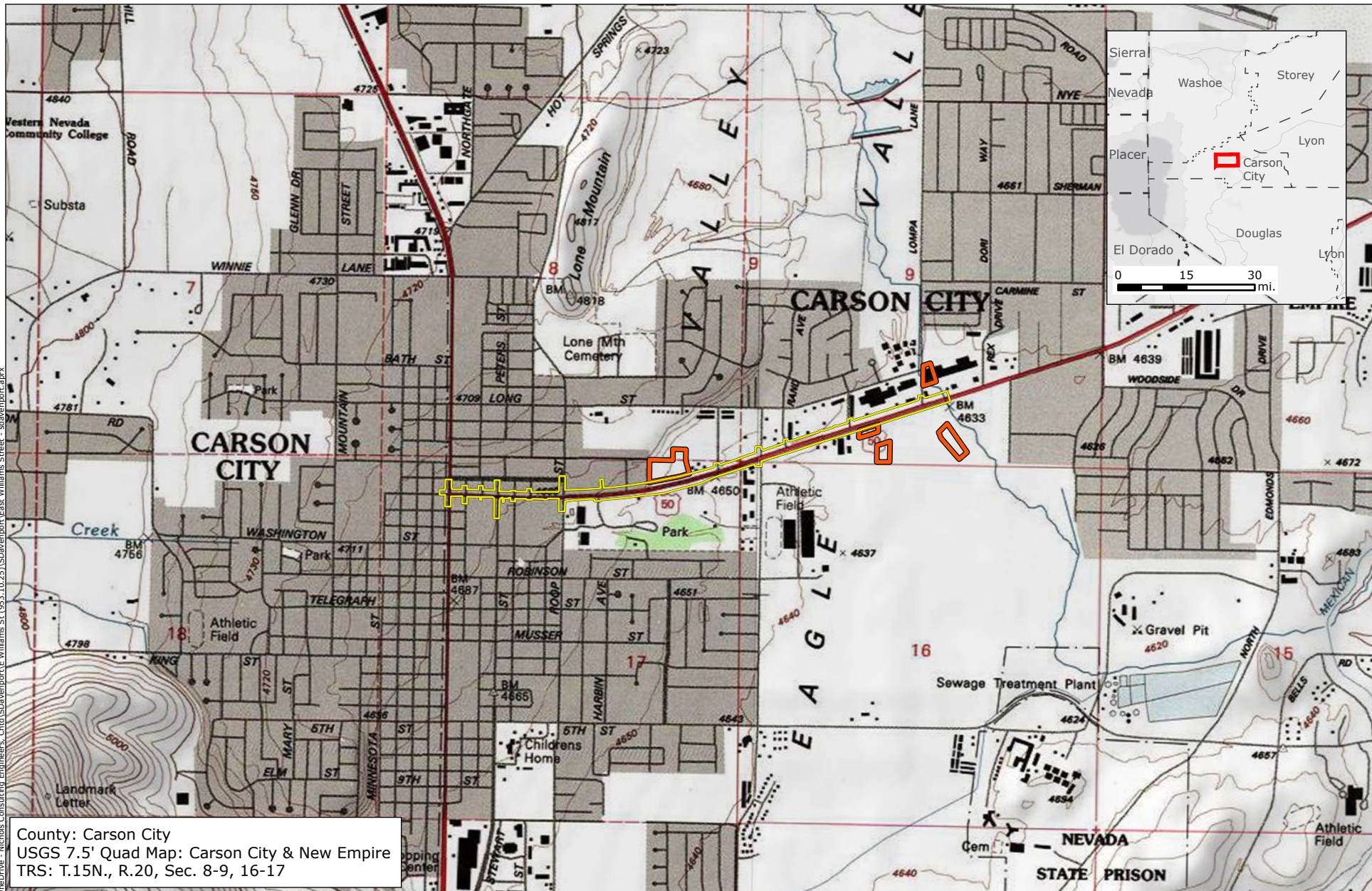
CONCLUSION

There are no significant changes in the Demographic Index comparing residents and businesses along East Williams Street with others within a one-mile range. There is no increase or decrease in exposure to environmental factors such as air quality. The Project is designed to improve safety for motorists, pedestrians, cyclists, improved ADA facilities and, indirectly, improve transit services. All transit trips begin with walking or rolling to the bus. The Project will provide better access to a major park and promote student safety for those walking and cycling to Carson High School. It will provide sidewalks and bike lanes along the corridor where sparse resources now exist. The Project will improve drainage, lighting and utility services which helps local businesses.

In terms of environmental justice, this project is a net benefit for residents and businesses.

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Appendix A Figures



- Legend**
- Project Area
 - Potential Staging Area



East William Complete Streets and Utility Undergrounding Project

Project Vicinity Map

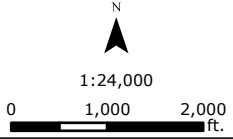


FIGURE
1

SOURCE
ESRI USGS Topography Basemap

JOB NUMBER
953.10.25

DRAWN
sdavenport

DATE
1/25/2022

REVISED
12/7/2022

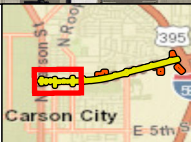
APPROVED
jhall

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- Legend**
- Project Area
 - Potential Staging Area



East William Complete Streets and Utility Undergrounding Project

Project Detail Map

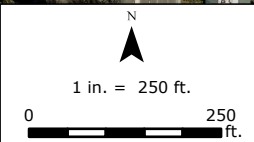


FIGURE
2a

SOURCE
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JOB NUMBER
953.10.25

DRAWN
sdavenport

DATE
1/25/2022

REVISED
12/7/2022

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- Legend**
- Project Area
 - Potential Staging Area



East William Complete Streets and Utility Undergrounding Project

Project Detail Map

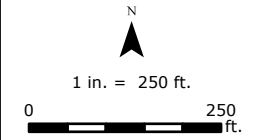


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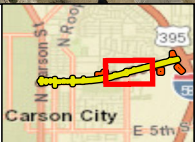
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- Legend**
- Project Area
 - Potential Staging Area



East William Complete Streets and Utility Undergrounding Project

Project Detail Map

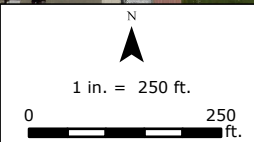


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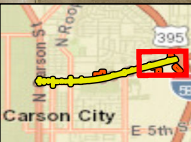
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- Legend**
- Project Area
 - Potential Staging Area



East William Complete Streets and Utility Undergrounding Project

Project Detail Map

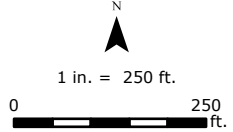


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Carson City Ortho Imagery

JOB NUMBER
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DATE
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Appendix B EJ Screen Reports

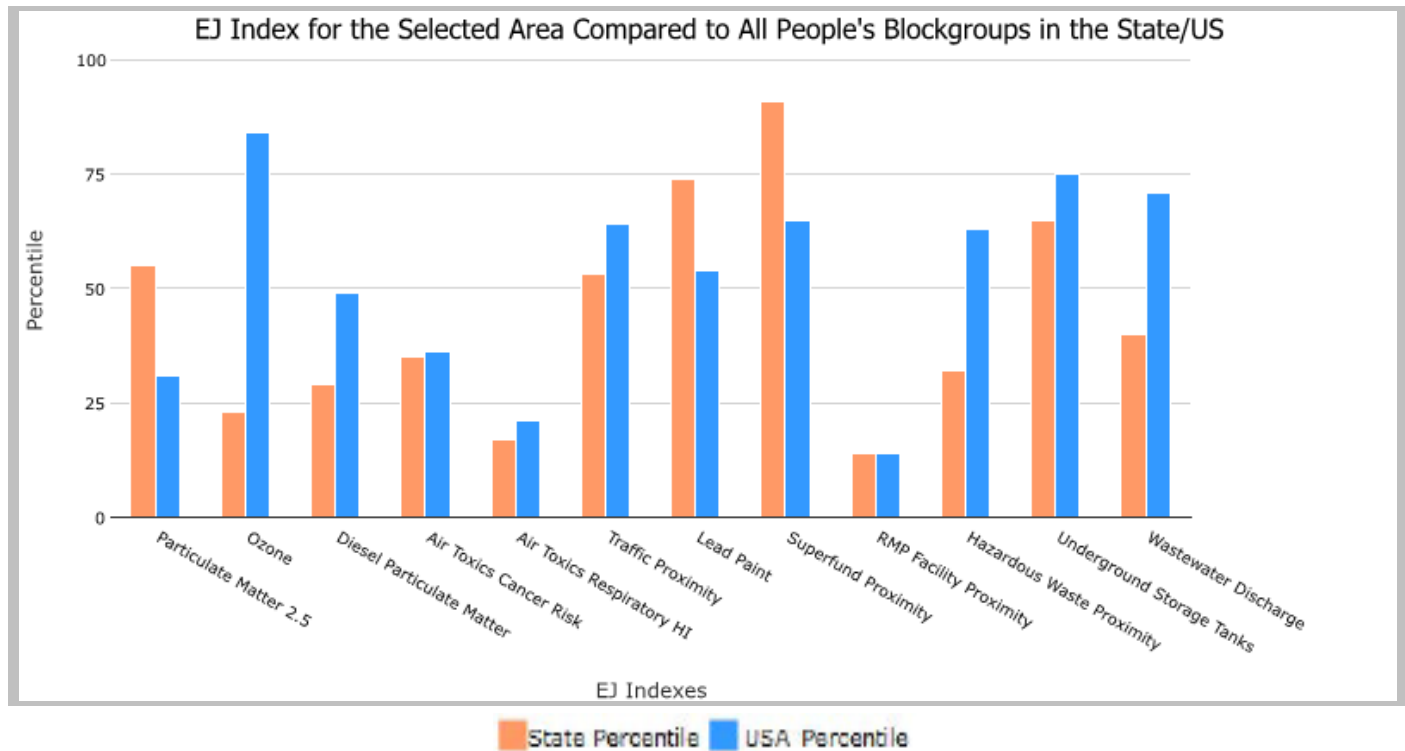
0.1 miles Ring around the Area, NEVADA, EPA Region 9

Approximate Population: 1,051

Input Area (sq. miles): 0.42

East Williams Street

Selected Variables	State Percentile	USA Percentile
Environmental Justice Indexes		
EJ Index for Particulate Matter 2.5	55	31
EJ Index for Ozone	23	84
EJ Index for Diesel Particulate Matter*	29	49
EJ Index for Air Toxics Cancer Risk*	35	36
EJ Index for Air Toxics Respiratory HI*	17	21
EJ Index for Traffic Proximity	53	64
EJ Index for Lead Paint	74	54
EJ Index for Superfund Proximity	91	65
EJ Index for RMP Facility Proximity	14	14
EJ Index for Hazardous Waste Proximity	32	63
EJ Index for Underground Storage Tanks	65	75
EJ Index for Wastewater Discharge	40	71



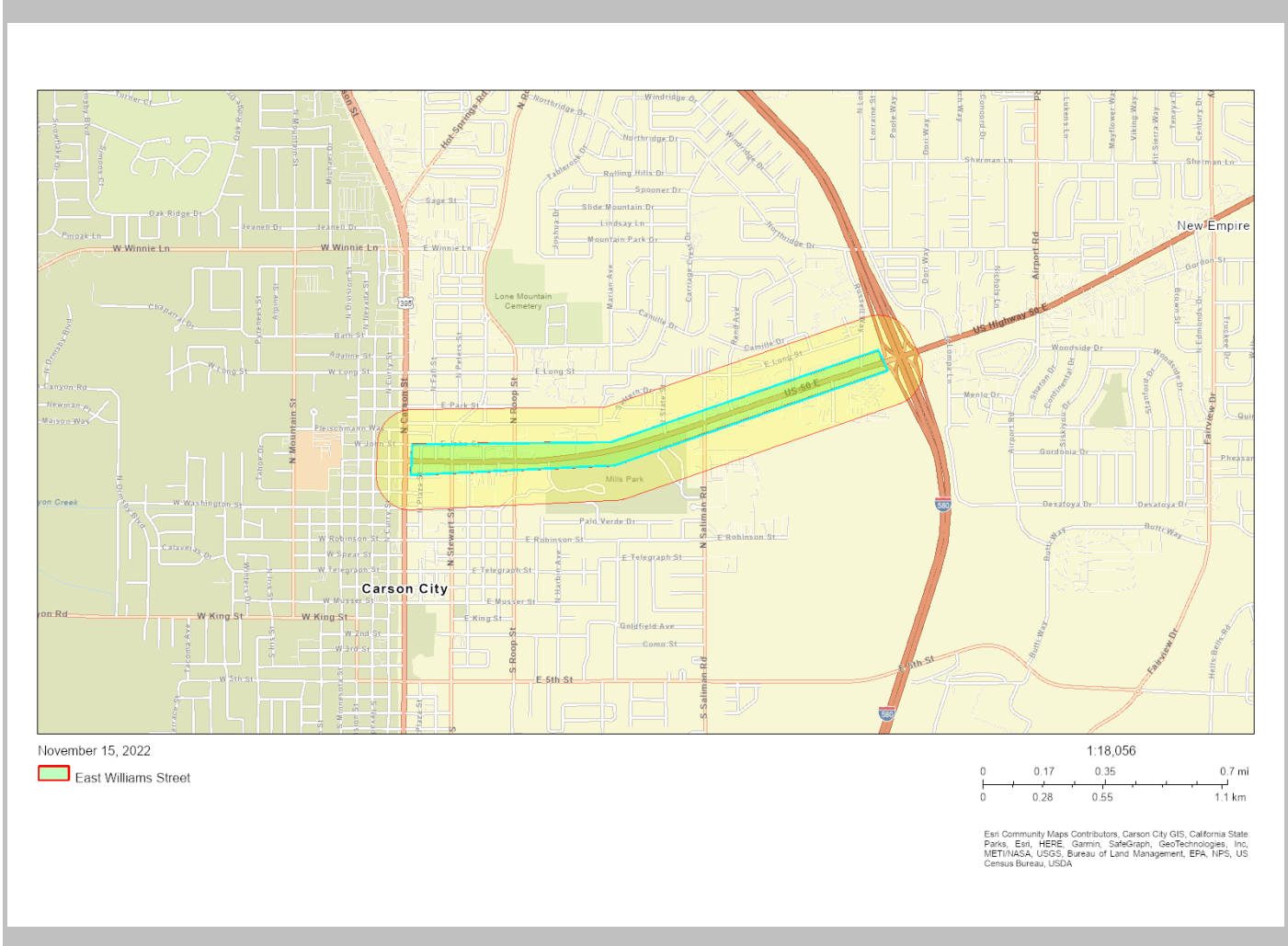
This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

0.1 miles Ring around the Area, NEVADA, EPA Region 9

Approximate Population: 1,051

Input Area (sq. miles): 0.42

East Williams Street



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJScreen Report (Version 2.1)

0.1 miles Ring around the Area, NEVADA, EPA Region 9

Approximate Population: 1,051

Input Area (sq. miles): 0.42

East Williams Street

Selected Variables	Value	State Avg.	%ile in State	USA Avg.	%ile in USA
Pollution and Sources					
Particulate Matter 2.5 ($\mu\text{g}/\text{m}^3$)	7.24	7.12	49	8.67	16
Ozone (ppb)	54.5	57.6	17	42.5	92
Diesel Particulate Matter* ($\mu\text{g}/\text{m}^3$)	0.16	0.439	20	0.294	<50th
Air Toxics Cancer Risk* (lifetime risk per million)	20	25	46	28	<50th
Air Toxics Respiratory HI*	0.2	0.34	19	0.36	<50th
Traffic Proximity (daily traffic count/distance to road)	430	700	63	760	63
Lead Paint (% Pre-1960 Housing)	0.13	0.05	85	0.27	38
Superfund Proximity (site count/km distance)	0.062	0.014	97	0.13	51
RMP Facility Proximity (facility count/km distance)	0.051	0.42	8	0.77	6
Hazardous Waste Proximity (facility count/km distance)	0.88	2	27	2.2	54
Underground Storage Tanks (count/km ²)	7.4	3.3	87	3.9	84
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.0053	13	43	12	64
Socioeconomic Indicators					
Demographic Index	37%	41%	45	35%	61
People of Color	29%	52%	25	40%	49
Low Income	44%	32%	71	30%	74
Unemployment Rate	7%	7%	62	5%	70
Limited English Speaking Households	4%	6%	60	5%	73
Less Than High School Education	11%	13%	52	12%	59
Under Age 5	11%	6%	87	6%	87
Over Age 64	21%	16%	72	16%	70

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

For additional information, see: www.epa.gov/environmentaljustice

EJScreen is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJScreen outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

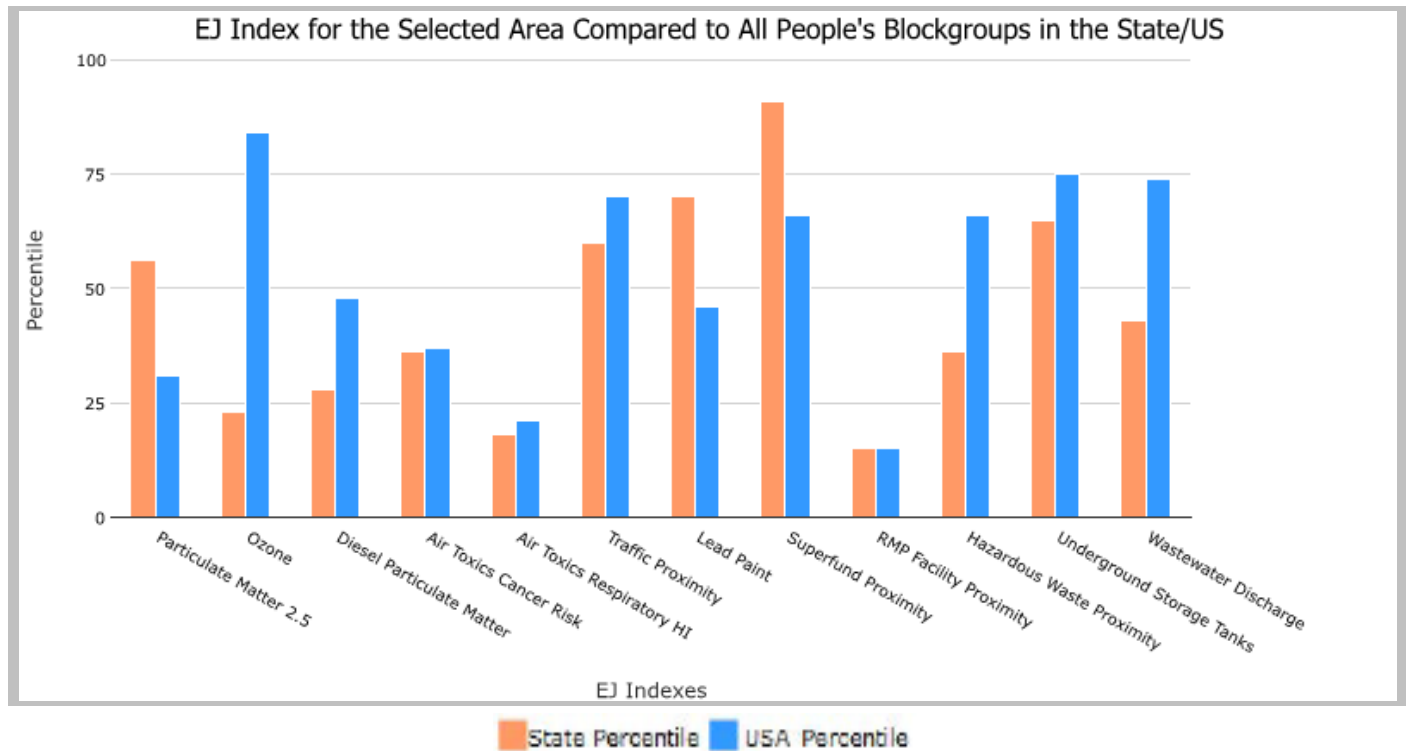
0.5 miles Ring around the Area, NEVADA, EPA Region 9

Approximate Population: 9,357

Input Area (sq. miles): 2.35

East Williams Street

Selected Variables	State Percentile	USA Percentile
Environmental Justice Indexes		
EJ Index for Particulate Matter 2.5	56	31
EJ Index for Ozone	23	84
EJ Index for Diesel Particulate Matter*	28	48
EJ Index for Air Toxics Cancer Risk*	36	37
EJ Index for Air Toxics Respiratory HI*	18	21
EJ Index for Traffic Proximity	60	70
EJ Index for Lead Paint	70	46
EJ Index for Superfund Proximity	91	66
EJ Index for RMP Facility Proximity	15	15
EJ Index for Hazardous Waste Proximity	36	66
EJ Index for Underground Storage Tanks	65	75
EJ Index for Wastewater Discharge	43	74



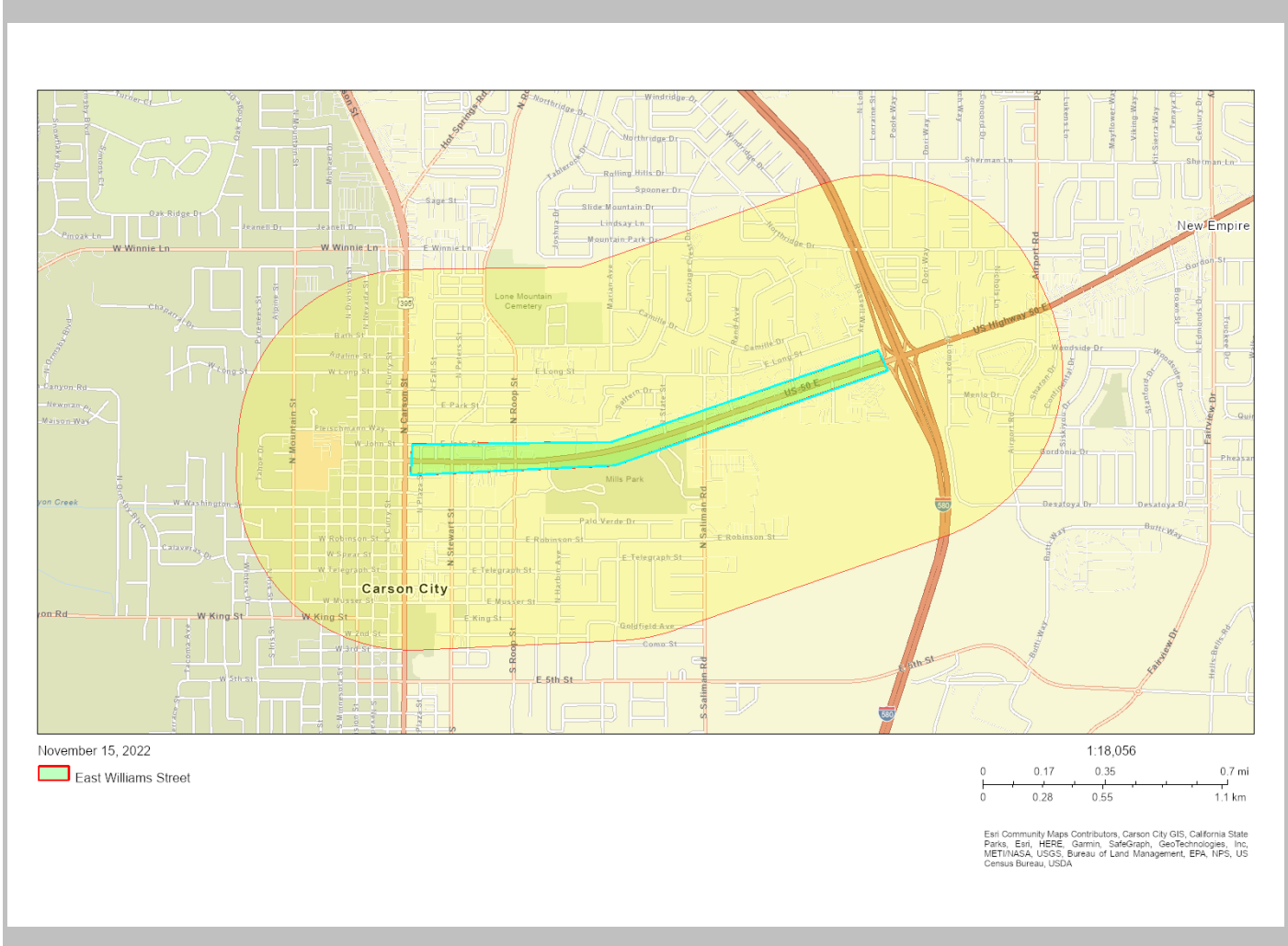
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0.5 miles Ring around the Area, NEVADA, EPA Region 9

Approximate Population: 9,357

Input Area (sq. miles): 2.35

East Williams Street



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJScreen Report (Version 2.1)

0.5 miles Ring around the Area, NEVADA, EPA Region 9

Approximate Population: 9,357

Input Area (sq. miles): 2.35

East Williams Street

Selected Variables	Value	State Avg.	%ile in State	USA Avg.	%ile in USA
Pollution and Sources					
Particulate Matter 2.5 ($\mu\text{g}/\text{m}^3$)	7.24	7.12	50	8.67	17
Ozone (ppb)	54.5	57.6	16	42.5	92
Diesel Particulate Matter* ($\mu\text{g}/\text{m}^3$)	0.152	0.439	19	0.294	<50th
Air Toxics Cancer Risk* (lifetime risk per million)	20	25	46	28	<50th
Air Toxics Respiratory HI*	0.2	0.34	19	0.36	<50th
Traffic Proximity (daily traffic count/distance to road)	650	700	74	760	73
Lead Paint (% Pre-1960 Housing)	0.11	0.05	85	0.27	37
Superfund Proximity (site count/km distance)	0.064	0.014	98	0.13	52
RMP Facility Proximity (facility count/km distance)	0.053	0.42	8	0.77	6
Hazardous Waste Proximity (facility count/km distance)	1.1	2	30	2.2	57
Underground Storage Tanks (count/km ²)	6.7	3.3	85	3.9	83
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.0078	13	47	12	67
Socioeconomic Indicators					
Demographic Index	37%	41%	46	35%	61
People of Color	34%	52%	32	40%	54
Low Income	40%	32%	66	30%	68
Unemployment Rate	6%	7%	52	5%	63
Limited English Speaking Households	3%	6%	51	5%	67
Less Than High School Education	13%	13%	59	12%	66
Under Age 5	6%	6%	61	6%	62
Over Age 64	17%	16%	63	16%	58

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

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EJScreen Report (Version 2.1)

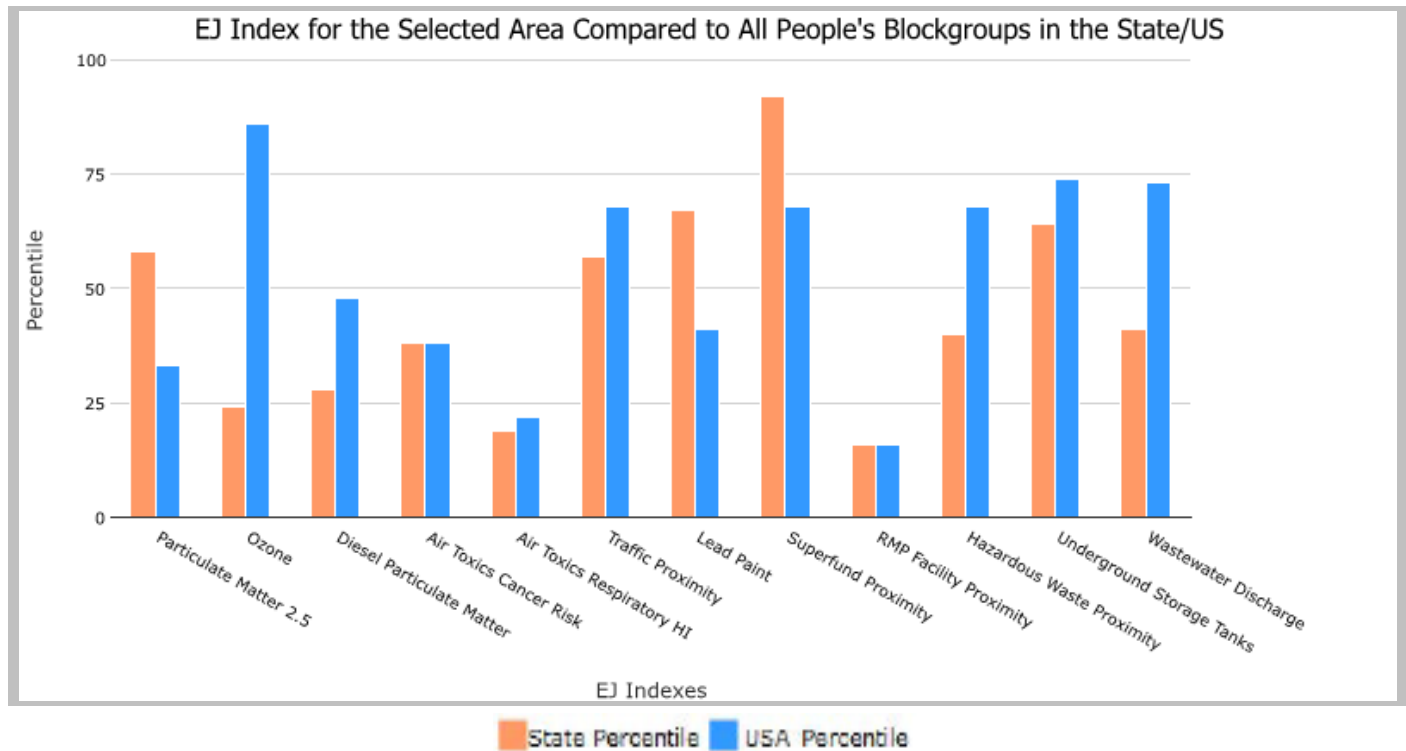
1 mile Ring around the Area, NEVADA, EPA Region 9

Approximate Population: 25,121

Input Area (sq. miles): 6.18

East Williams Street

Selected Variables	State Percentile	USA Percentile
Environmental Justice Indexes		
EJ Index for Particulate Matter 2.5	58	33
EJ Index for Ozone	24	86
EJ Index for Diesel Particulate Matter*	28	48
EJ Index for Air Toxics Cancer Risk*	38	38
EJ Index for Air Toxics Respiratory HI*	19	22
EJ Index for Traffic Proximity	57	68
EJ Index for Lead Paint	67	41
EJ Index for Superfund Proximity	92	68
EJ Index for RMP Facility Proximity	16	16
EJ Index for Hazardous Waste Proximity	40	68
EJ Index for Underground Storage Tanks	64	74
EJ Index for Wastewater Discharge	41	73



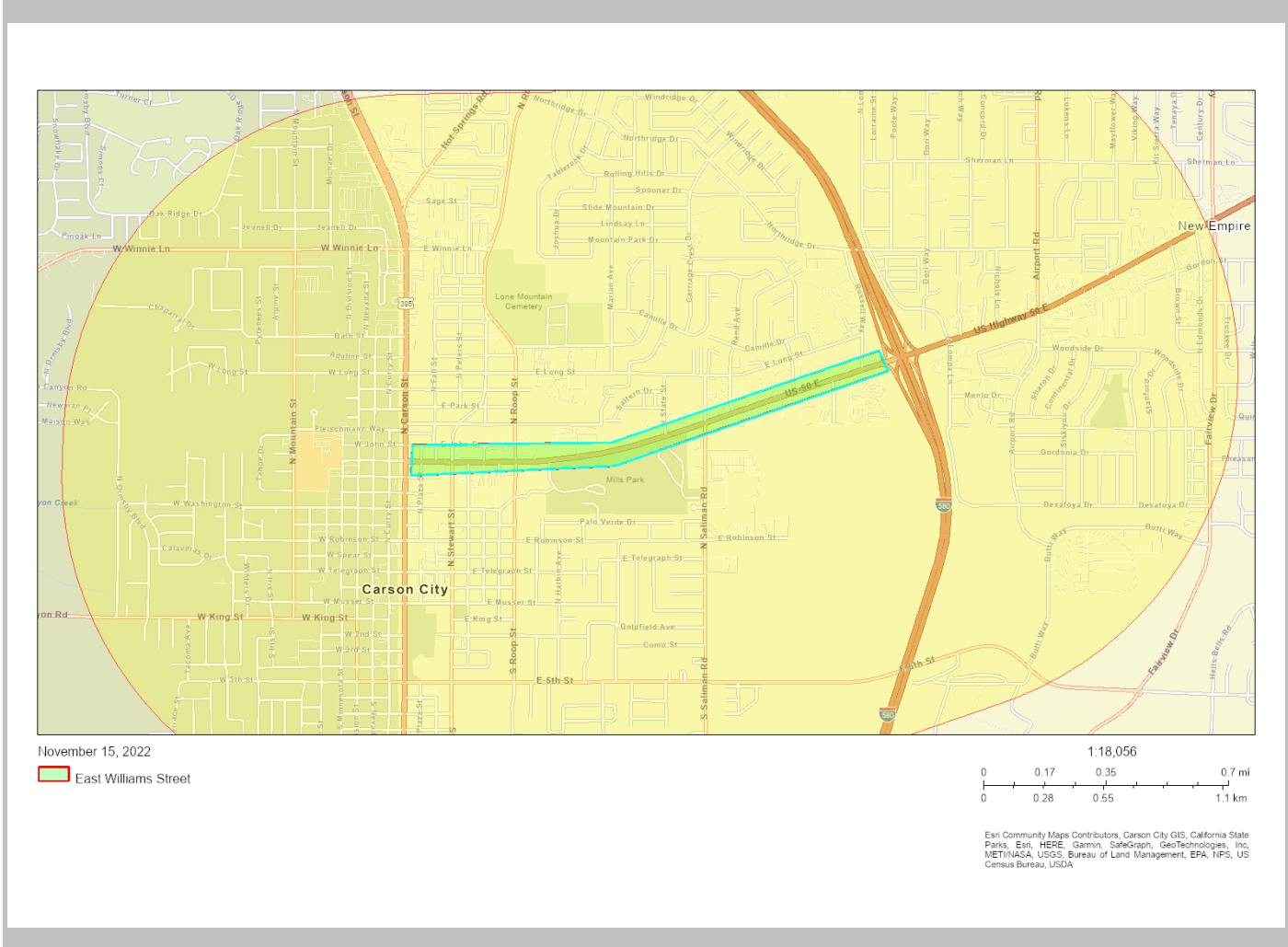
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East Williams Street



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Pollution and Sources					
Particulate Matter 2.5 ($\mu\text{g}/\text{m}^3$)	7.24	7.12	50	8.67	17
Ozone (ppb)	54.5	57.6	16	42.5	92
Diesel Particulate Matter* ($\mu\text{g}/\text{m}^3$)	0.146	0.439	18	0.294	<50th
Air Toxics Cancer Risk* (lifetime risk per million)	20	25	46	28	<50th
Air Toxics Respiratory HI*	0.2	0.34	19	0.36	<50th
Traffic Proximity (daily traffic count/distance to road)	490	700	66	760	66
Lead Paint (% Pre-1960 Housing)	0.1	0.05	83	0.27	35
Superfund Proximity (site count/km distance)	0.065	0.014	98	0.13	52
RMP Facility Proximity (facility count/km distance)	0.053	0.42	8	0.77	6
Hazardous Waste Proximity (facility count/km distance)	1.2	2	32	2.2	59
Underground Storage Tanks (count/km ²)	6.3	3.3	83	3.9	82
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.0057	13	44	12	64
Socioeconomic Indicators					
Demographic Index	39%	41%	50	35%	64
People of Color	39%	52%	37	40%	58
Low Income	40%	32%	65	30%	68
Unemployment Rate	6%	7%	53	5%	63
Limited English Speaking Households	3%	6%	55	5%	70
Less Than High School Education	15%	13%	63	12%	71
Under Age 5	6%	6%	60	6%	61
Over Age 64	18%	16%	65	16%	60

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

For additional information, see: www.epa.gov/environmentaljustice

EJScreen is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJScreen outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.