

# 2024 SOLAR ECLIPSE

## TRAFFIC MANAGEMENT PLAN

OCTOBER 11, 2023 VERSION



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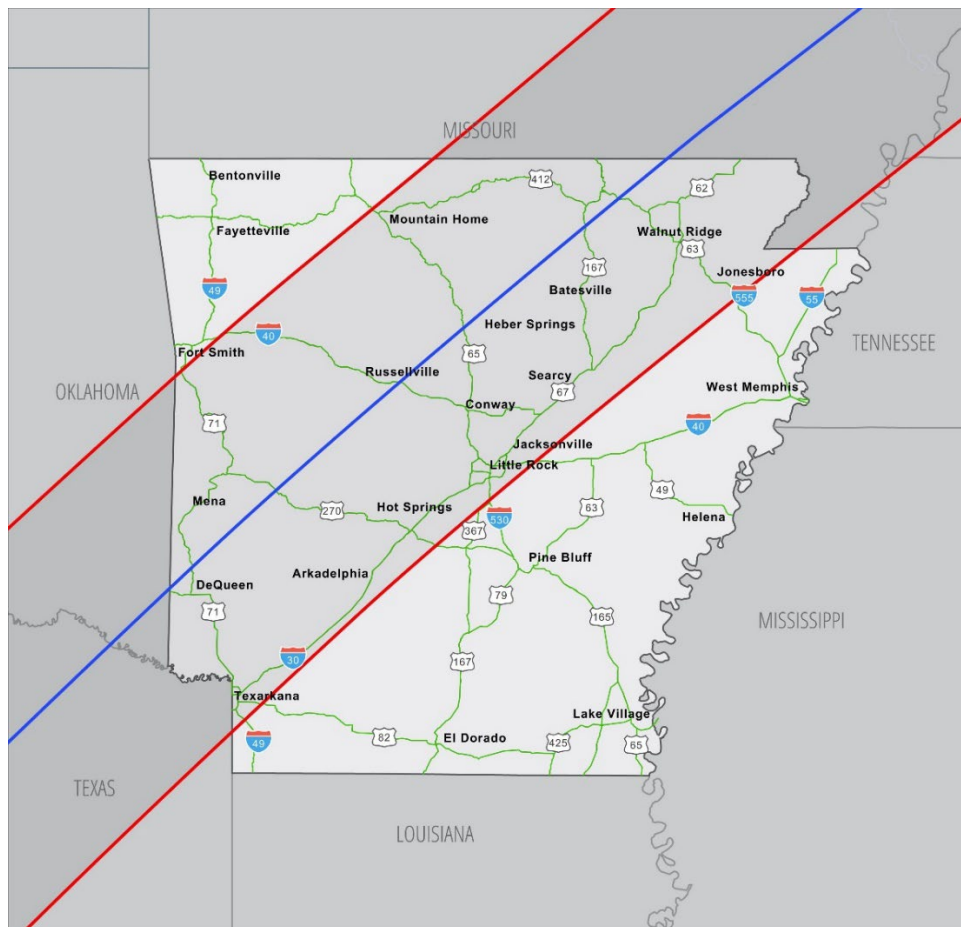
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# INTRODUCTION

The State of Arkansas is expected to experience a total solar eclipse (Eclipse) on April 8, 2024. The Moon will pass between the Sun and the Earth, creating a 117.9-mile-wide shadow that will enter the southwest tip of Arkansas near De Queen at 1:46 PM Central Daylight Time (CDT). The shadow will move along a northeasterly path until it exits the state near Pochahontas at approximately 2:00 PM. The period of total darkness for any particular location along the center of the path will be just over four minutes.<sup>1</sup> The projected path through Arkansas is shown in **Figure 1**.

**Figure 1: 2024 Solar Eclipse Path of Totality**



<sup>1</sup> <https://www.GreatAmericanEclipse.com/Arkansas-2024-eclipse>, Access date: 8/8/2023.

Many tourists are expected to travel to view the Eclipse, likely making this the largest tourism event in Arkansas history. This Traffic Management Plan (TMP) is to be used as a guide to help public officials, and various agencies prepare for and manage the expected increase in traffic volumes leading up to, during, and after the Eclipse.

## **DATA COMPILATION**

Up to 1.5 million people are expected to travel from outside the state into Arkansas, along with 500,000 Arkansans who will travel from their residences to the path of totality, for a total of two million people who will visit the viewing area. To develop a conservative estimate of visiting vehicle trips, ARDOT assumed that all visitors will travel in motor vehicles and an average of 2.86<sup>2</sup> passengers will travel in each vehicle. This would result in the influx of approximately 700,000 extra vehicle trips into the path of totality. To estimate the date of travel for visitors, travel patterns from the most recent total eclipse in 2017, which also occurred on a Monday, were reviewed. The review showed that approximately 30 percent of the sightseers arrived on the day of the event, and up to 80 percent left immediately after sunlight returned. The study team expects similar travel patterns for this Eclipse, leading to large increases in traffic volumes on ARDOT highways and the local road system.

Reservations at Arkansas State Parks for the days surrounding the 2024 Eclipse were reviewed to estimate when travelers would arrive and depart. The State Park data set also included zip code information for each reservation. The zip code data was used to identify the trip origins for each State Park visitor, and then extrapolated to represent all two million sightseers headed to the path of totality.

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<sup>2</sup> <https://nhts.ornl.gov>, Travel for Recreational Activities (visit parks, movies, bars, museums); Access date: 8/11/23

State Parks, hotels, Eclipse festivals, and other traffic generators were used to establish the trip destinations within the study area, and the trip distribution feature of the ARDOT Statewide Travel Demand Model was used to connect the trip origins to the trip destinations.

## TRAFFIC FORECASTING

Traffic patterns will change in the days leading up to the Eclipse as visitors travel to the state, and on the morning of the Eclipse as both visitors and residents position themselves for viewing. In this positioning effort, drivers may take undesired actions such as stopping in the roadway or on the shoulder. Immediately following the Eclipse, most viewers will immediately leave to go home or to their place of lodging, resulting in extreme traffic volumes that far exceed the capacity of many roadways.

**Figure 2** indicates preliminary locations on the State Highway System where high or extreme traffic volumes are anticipated immediately following the Eclipse. Impacted highways have been divided into four groups, as discussed below. Updated versions of this map will be available on ARDOT's website. Systemic mitigation efforts will vary depending on these groups, with the most focused attention given to the higher prioritized groups.

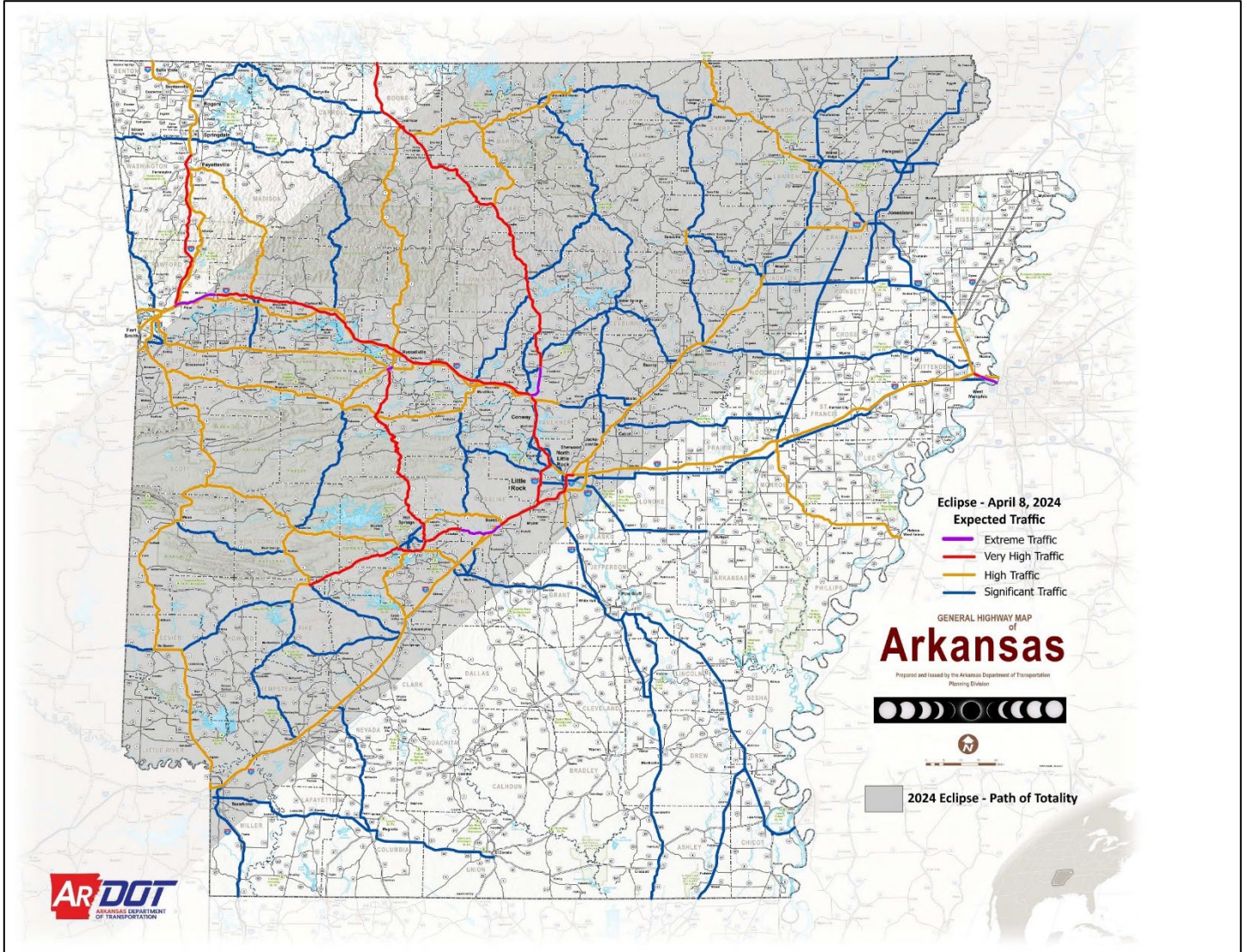
- **Extreme** – The highest congestion levels on the system. These are bottleneck points that will ultimately determine the capacity of the system. These locations should be closely examined for spot mitigation.
- **Very High** – Volumes will be well above capacity (possibly several times the hourly capacity), a condition that will likely continue for several hours after the Eclipse

concludes. Incidents here could quickly make conditions even worse. These locations should also be examined for spot mitigation.

- **High** – Volume will likely be above capacity for several hours, with significant delays occurring. If all goes well, traffic will probably clear within a few hours; however, incidents could quickly result in more severe problems.
- **Significant** – Volumes will approach or modestly exceed capacity, with some delays. Any incidents could quickly worsen conditions on these roadways. Many of these routes are in locations where residents or local agencies are not accustomed to heavy traffic. Because ARDOT resources will largely be deployed on other routes, assistance from local agencies may be requested to ensure these routes continue to function as well as possible given the circumstances.



**Figure 2: Locations Expecting High Traffic Volumes**



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# TRAFFIC DEMAND REDUCTION STRATEGIES

Forecasted post-Eclipse volumes will exceed capacity on many roads, and it is not practical to sufficiently increase roadway capacity for a one-day event. For these reasons, an important strategy will be to encourage people to reduce travel, particularly on routes of concern. This is known as Transportation Demand Management (TDM). Most of the public will not be expecting the extreme congestion caused by the Eclipse. The strategies discussed below will help public officials and agencies to understand expected travel conditions following the Eclipse, and then to aid in making decisions to avoid and mitigate extreme congestion and delays.

## STAY A WHILE

Data from the 2017 Eclipse suggests that up to 80 percent of the traffic is expected to leave immediately after the Eclipse passes over, putting a tremendous strain on the roadway network. By staying in Arkansas longer, travelers can avoid extreme congestion, and congestion levels for those who need to leave will be moderated. Extended stays also provide more opportunities for Arkansas businesses. Arkansas State Parks are already planning to continue their festivals after the Eclipse is over. Promoting activities hosted by the State Parks and other festival locations that encourage tourists, especially those in RVs, to stay longer will be beneficial to reduce the concentrated traffic demands.

## WORK FROM HOME

The path of totality passes through several metropolitan areas where commuting traffic makes up a sizeable percentage of total roadway users. The post-Eclipse visitor rush will coincide with the afternoon commuting peak, furthering traffic congestion. In some cases, what is normally a half-hour commute could take several times longer. Where the

work type allows, businesses and employees alike could be best served by avoiding commuting on this day by working from home, adjusting schedules, and other means.

## **SCHOOL CLOSINGS**

Several school districts in Arkansas have already announced closures on the day of the Eclipse, allowing students to experience this event with their families, and also avoiding the logistical challenges of operating schools and school buses on this day. ARDOT will share traffic projections, and other data as needed, with the Arkansas Department of Education (ADE), providing them the resources needed to inform school districts of Eclipse-related concerns.

## **OVERSIZE LOADS**

To reduce congestion, ARDOT may limit the issuance of oversized permits on the days leading up to and immediately after the Eclipse. ARDOT will alert the Arkansas Trucking Association, and other entities as appropriate, to give them ample time to adjust travel schedules.

## **TRUCK HOLIDAY**

Severe congestion is expected on the entire Arkansas State Highway System during the Eclipse, to such an extent that the day may be mostly unproductive for freight vehicles. ARDOT will engage the Arkansas Trucking Association in an effort to encourage truckers to adjust their travel schedule, so they are not trapped on the roadways with Eclipse-related traffic. Like other TDM strategies discussed, this will be a voluntary decision on the part of the commercial drivers with no penalty for those who decide to operate during the Eclipse.

# TRAFFIC FLOW ENHANCEMENTS

Even with the TDM measures discussed above, volumes on many highways in Arkansas are expected to greatly exceed capacity, leading to high delays at some locations. The steps below will allow ARDOT and local agencies to make the best use of the available infrastructure and other resources (personnel, message boards, traffic control devices, etc.), ensuring that traffic flows as smoothly as possible. These steps will also ensure that emergency responders can maneuver to incident sites as needed.

This plan prioritizes major routes (Interstates and long-distance highways), making sure that the higher-capacity roadways flow as well as possible. This approach should maximize the capacity of the entire system.

## REDUCED CONSTRUCTION ACTIVITY

On all construction projects being let to contract before the Eclipse, ARDOT has released a new Total Solar Eclipse Special Provision (SP) that will limit main lane road closures from April 5–9, 2024. The SP is included as **Appendix A**. This proactive step will help maximize capacity of the existing roadway network. On projects let to contract prior to this new special provision, ARDOT will work with contractors to reduce construction activities on these days.

## SYSTEMWIDE REVIEW OF BOTTLENECK POINTS

Traffic problems will most likely occur at intersections (particularly signalized intersections), which are often the “bottleneck” points on a roadway network. Traffic signals that work well under normal conditions may be quickly overwhelmed as volumes increase. The State Highway System will be comprehensively reviewed for points where

bottlenecks could occur, such as points where two of the routes shown in **Figure 2** intersect. Strategies will be implemented to address these concerns.

## **COORDINATION WITH LOCAL AGENCIES**

There are insufficient state resources to address all the traffic concerns expected in Arkansas. For this reason, local governments will be a critical partner in ensuring the success of this event. Regarding traffic, ARDOT resources will generally be deployed on the higher-prioritized routes as shown in **Figure 2**. Therefore, local agencies may be relied upon to address concerns on other routes if they have the resources to do so.

As discussed above, many of the bottleneck points will likely occur at traffic signals. Traffic signals that work well under low-volume conditions may quickly fail as volumes increase. Local agencies are encouraged to adjust signal timings to better handle higher traffic volumes, or if needed, be prepared to manually direct traffic at key locations.

## **LAW ENFORCEMENT AND EMERGENCY RESPONSE POSITIONING**

With volumes already well above capacity, any incidents (due to crashes, weather, or other causes) will quickly make a very challenging situation even worse. Arkansas Department of Emergency Management will lead the coordination effort. ARDOT personnel will work in tandem with State Police pre-position along key routes slated to experience extreme increase in traffic volumes. The focus will be on maintaining traffic flow and minimizing disruptions. State and local agencies are encouraged to work with wrecker services to ensure that any incidents can be quickly addressed.

## **MOUNTAINOUS ROUTES**

In some cases, very high volumes are expected on rural, mountainous routes that are not designed for these traffic volumes. Unfamiliar drivers could find themselves facing long



travel delays on steep, rugged roads without cellular service. This could be especially challenging for larger vehicles, such as recreational vehicles (RVs). ARDOT will identify a list of key mountainous roads where greatly increased travel volumes are expected and develop a strategy to alert drivers.

## **ALTERNATE ROUTES**

Traffic volumes will likely exceed capacity on many highways, making it difficult to avoid congestion by choosing another route. However, there will be some locations where encouraging alternate roadways makes sense. In other cases (like mountainous areas), use of certain routes by large vehicles will need to be discouraged. Strategies will be developed to provide guidance to motorists.

## **SPOT MITIGATION**

Additional location-specific measures will be considered on highways that are shown in **Figure 2** as “Extreme” or “Very High”. These mitigation efforts will be developed in the coming months as the Eclipse approaches.

# **TRAFFIC MANAGEMENT CENTER (TMC)**

The ARDOT Traffic Management Center (TMC) serves as a central hub for all traffic-related activity on the State Highway System. The TMC will collect live information from cameras, on-the-ground personnel, and online sources before, during, and after the Eclipse. The TMC will then disseminate that information to flagging crews, enforcement personnel, and emergency responders, along with potential countermeasures as appropriate; in an effort to eliminate challenging traffic situations as soon as possible.

# **PUBLIC INFORMATION**

## **COORDINATION WITH THE ARDOT COMMUNICATIONS DIVISION**

Many of the measures discussed in the plan will require coordination and cooperation with numerous stakeholders, such as local governmental agencies, businesses, and the general public. To facilitate this coordination, ARDOT will develop a Public Communications Plan related to the anticipated travel conditions to accompany the 2024 Arkansas Solar Eclipse TMP.

Also, the ARDOT Communications Division anticipates an influx of incoming phone calls during the solar eclipse event. Consequently, additional staff members will be in place to field calls and handle public inquiries leading up to, during, and after the Eclipse.

## **SAFETY/PROTECTION OF LAW ENFORCEMENT/WORKERS**

Consideration of exposure control will be crucial for protecting workers and drivers. For example, law enforcement will be more prevalent due to the expected sudden traffic queuing on high-speed roadways. While the officers are protecting and guiding the public, their safety and exposure will be considered.

All on the ground personnel will be required to follow the guidelines presented in the Manual on Uniform Traffic Control Devices (MUTCD) to ensure the safe and efficient operation of vehicles, as well as their own safety.



## CLOSING

The 2024 Eclipse will generate high levels of traffic congestion resulting in unavoidable delays. This plan will guide us as we strive to keep traffic flowing through this memorable event. ARDOT encourages all visitors to enjoy this unique experience, and to make safety their top priority as they travel to and from the event.

ARDOT would also like to thank their employees and the associates from other private and government entities for their work and dedication in making the 2024 Solar Eclipse a successful event.

# APPENDIX A

## SOLAR ECLIPSE SPECIAL PROVISION

06-29-2023

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### ARKANSAS DEPARTMENT OF TRANSPORTATION

#### SPECIAL PROVISION

JOB NO.

#### TOTAL SOLAR ECLIPSE

**Section 603 Maintenance of Traffic and Temporary Structures** of the Standard Specifications, Edition of 2014, is hereby expanded as follows:

The Contractor shall schedule his work so that no main lane closures exist and no work requiring main lane closures will be performed for the time period of Friday, April 5, 2024 through Tuesday, April 9, 2024 for the event of a total solar eclipse expected on Monday, April 8, 2024.

**BASIS OF PAYMENT:** There shall be no direct payment for fulfilling the requirements of the Special Provision, but compensation shall be considered included in the price bid for Maintenance of Traffic.