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SR 68 Scenic Highway Plan

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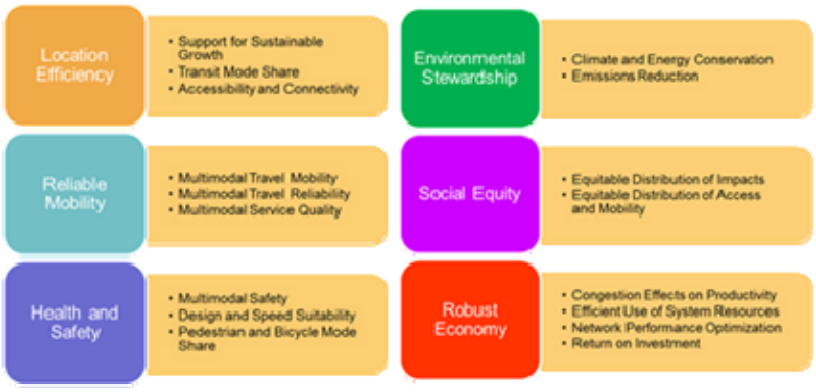
The SR 68 Scenic Highway Plan is a precedent setting corridor plan that integrates multimodal transportation planning with wildlife connectivity planning and a robust public outreach strategy. When implemented, the plan will result in the first Roundabout Corridor on a state highway in California, provide wildlife crossing structures and an enhanced sense of character for the community while reducing delay and GHG emissions.

The SR 68 corridor serves several very important functions. The only direct route between Salinas and Monterey, it is a critical transportation lifeline for many residents and businesses along and on either end of the route. It is one of the few east-west connections in the region providing access to US 101, the Monterey Regional Airport, the Mazda Raceway Laguna Seca, and the Fort Ord National Monument. It is one of the first designated scenic corridors in California, with iconic value to Monterey County, its residents, and visitors. However, traffic during peak commute periods, special events, or when corridor capacity is reduced by a collision, construction activity, or weather events has become severely congested and less reliable. This has degraded the quality of life for those who rely on the corridor for job access, commerce, airport access and recreational access. As an example, the MST, the principal transit provider for the area, severely reduced transit service on SR 68 due to its inability to adhere to schedule performance.

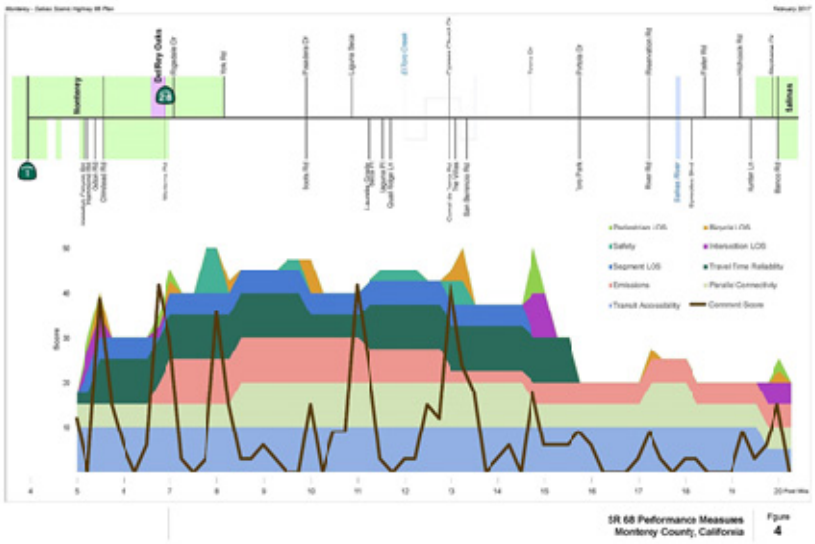
SR 68 is also a significant barrier to wildlife that must cross between known habitats on each side of the highway. As a result, roadkill is disproportionately common along SR 68 which introduces safety issues for both wildlife and motorists.

The SR 68 Scenic Highway Plan was a collaborative effort led by Transportation Agency for Monterey County (TAMC), funded jointly by Caltrans through a Sustainable Communities Planning Grant, and guided by input from all key stakeholders including: Cities of Monterey, Del Rey Oaks, and Salinas, County of Monterey, Caltrans, Bureau of Land Management, Monterey-Salinas Transit, Monterey Regional Airport, Mazda Raceway Laguna Seca, Toro Park, and Fort Ord National Monument. The Plan creates a unified vision of the SR 68 corridor that will best meet both the local and regional goals while providing the highest return on investment of limited transportation funding. The Plan was informed through extensive public outreach; strong interagency collaboration; and, a performance-based

technical analysis approach consistent with Caltrans 2010 Smart Mobility Framework (SMF), A Call to Action for the New Decade. Using the Smart Mobility Framework process, 10 performance measures were analyzed that informed the following six objectives: 1) Location Efficiency; 2) Reliable Mobility; 3) Health and Safety; 4) Environmental Stewardship; 5) Social Equity; and, 6) Robust Economy.



The study's performance results were compared to geo-referenced public input collected using an interactive web-based tool and visually displayed using a "cartogram". The cartogram allowed the technical findings of deficiencies within the corridor to be visually compared relative to the public's perception of the issues. This facilitated the development of five corridor concepts – three of which were advanced for more detailed analysis (i.e., phase two analysis).



Traditional public workshops were combined with web-based tools to geo-reference the public's perceived concerns and issues along the corridor. This input was overlaid on a visual cartogram to help confirm whether that the public's perception of problem areas matched the technical analysis results. These outreach tools were also used to gauge the public's support for potential solutions which helped inform the development of the alternative corridor concepts and ultimately the selection of a preferred corridor concept.

Automated polling exercises and physical analog comment maps were used at the first public workshop in order to receive input. An interactive "virtual" workshop was also provided on-line that emulated the public workshops to give residents and interested parties who could not attend a workshop an opportunity to share their ideas and concerns. These engagement tools were again used for a second Workshop for the purpose of presenting the analysis findings of the three corridor concepts under consideration and receive input from the public on which concept they could most support. A project website was developed which was heavily utilized by the public during the course of the study with over 4,000 unique visits – averaging more than 380 visits per month since inception. Another 231 people participated in the second Virtual Workshop. A database was established of interested parties informing an e-blast template and mailing list. A series of the e-Blasts were sent for a two-month period to promote participation in the second and decisive Workshop. The database consisted of over 160 individuals with an average "open" rate of 41.4%.

Given the long history and array of plans and opinions for how to improve SR 68, the threat of litigation was omni-present during development of the plan. This required absolute transparency – from the draft deliverables to technical inputs and output. Application of the Smart Mobility Framework process facilitated thorough documentation including quantitative performance-based support and justification for plan recommendations. Further transparency was accomplished by sharing draft deliverables on the project website for early public review and comment.

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A corridor-wide micro-simulation model was developed to analyze the operational performance of each corridor concept under future year conditions. At key corridor intersections, an Intersection Control Evaluation (ICE) was applied that quantified the performance of each control type (stop control, signal, roundabout) under design year conditions for: 1) safety (i.e., collision reduction); 2) delay reduction; 3) on-road mobile source emission reduction; 4) operations and maintenance costs; and 5) capital costs. Lastly, an environmental screen was performed for each corridor concept to ascertain the degree of environmental clearance difficulty that could be anticipated from implementation. These analyses informed a life-cycle benefit-cost assessment to determine which concept would ultimately provide the greatest return on investment. This information was integrated and balanced with the community's aesthetic, historic, environmental and livability goals to inform the selection of a preferred corridor concept. The selected concept was a "hybrid" being a slight modification of one of the three initial corridor concepts. To ensure its' future operational integrity, the preferred corridor concept was tested assuming future access controls and a large but currently litigated future development proposal. Although not typically included in planning level transportation plans, wildlife connectivity enhancements/treatments at key culverts and roadkill hotspot locations were included in the preferred corridor concept.

The primary planning innovations that contributed to the success of the SR 68 Scenic Highway Plan included: 1) innovative data collection techniques; 2) application of federal/state supported performance metrics; 3) use of visualization (graphics, simulations and video); 4) innovative public outreach; 5) transparency of process and results; and, 6) consideration of innovative improvement concepts including wildlife crossing improvements. Examples of these are described below:

Use of Bluetooth data to collect 7 months of travel time, speed and origin-destination data in the corridor. This data informed many aspects of the study – from performance measures to analysis and modeling inputs needed to quantify performance measures. Also, video was used to analyze intersection turn movements and operations (queue lengths) and to track and identify key wildlife crossings.

Analysis of travel time reliability, multi-modal level of service (2010 Highway Capacity Manual), collision reduction per the predictive method (Part C and D of the Highway Safety Manual); and on-road mobile source greenhouse emission reduction (EMFAC) among others. In particular, travel time reliability was empirically measured within the corridor using BlueMAC readers to calculate trip distribution, travel time, speeds and ultimately buffer time. Buffer time was combined with travel delay to capture the "true" cost of lost personal time experienced by SR 68 users.

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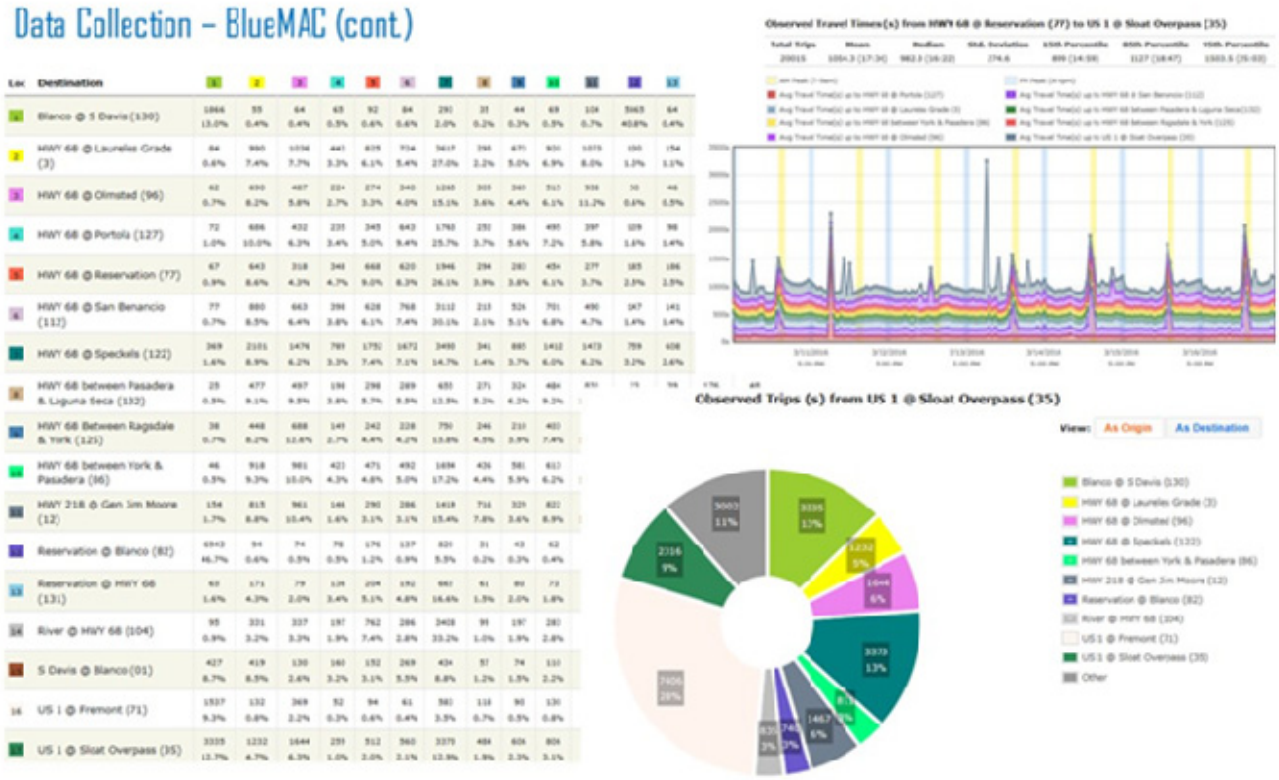

BlueMac Data: Trip Distribution Information

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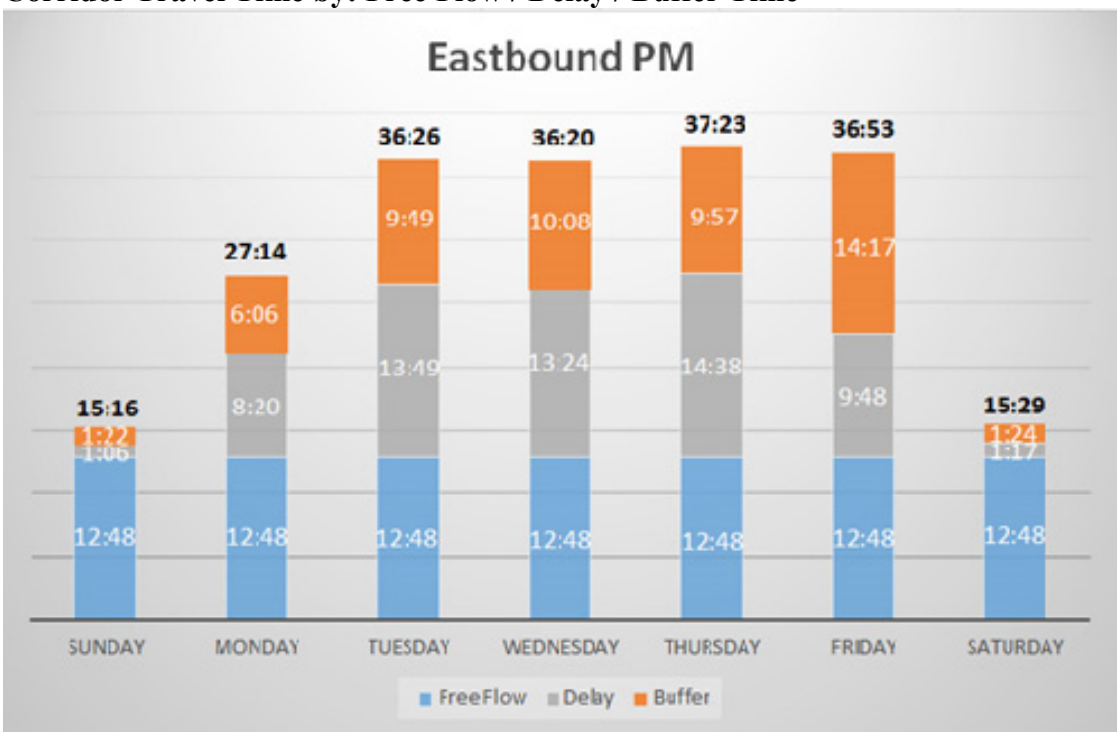
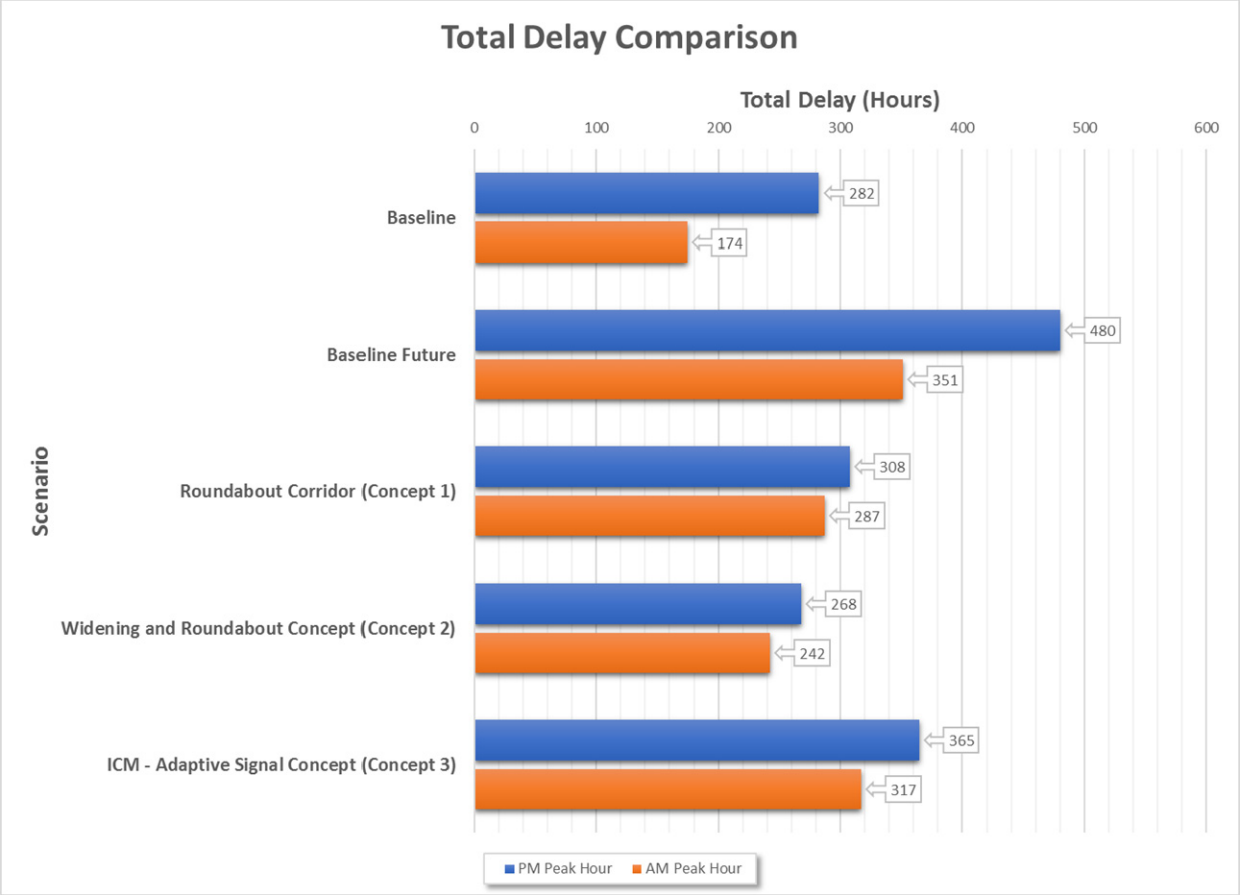
Corridor Travel Time by: Free Flow / Delay / Buffer Time



The plan utilized visual output and analysis tools to the greatest degree possible to summarize and convey technical information, including use of VISSIM animation of proposed roundabouts. This facilitated public/stakeholder understanding and support for the study's recommendations.



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A summary of the monetized values and resulting benefit-cost ratios for each corridor concept was developed. All monetized values were expressed in dollar amounts with a 20-year life cycle assumption using a 4 percent discount rate. The results indicated that the Roundabout Corridor (Concept 1) exhibited the highest return on investment with a B-C of **4.30** followed closely by the Integrated Corridor Management and Adaptive Signal Control Corridor (Concept 3) with a B-C of **4.25**. Due to its relative high capital and operations and maintenance life-cycle costs, the Widening with Roundabouts (Concept 2) yielded a B-C of **2.04** despite generating the highest monetized benefit of the three concepts. All three corridor concepts yielded a B-C of over 1.00 which indicated that all would result in a positive return on investment.

For safety, mobile source emissions, and operations and maintenance costs, multiple analyses were combined to provide a complete accounting of the benefits and costs. For instance, the Intersection Control Evaluation (ICE) analysis provided the safety benefits and costs for intersections while the Highway Safety Manual Predictive Method analysis yielded the results for segments. When combined, the Roundabout and Widening Corridors (Concepts 1 and 2) was superior in terms of cost efficiency related to safety, primarily due to a significant reduction in predicted annual fatal and/or injury type collisions for roundabout control versus signal control. Similarly, the monetized benefits for on-road vehicle emissions were a combination of the intersection specific ICE results (ROG, NOx, PM) and corridor-based VISSIM micro-simulation results for climate change emissions (GHG). The ICE emissions results are based solely on relative performance of a given intersection control type (roundabout or signal control) on vehicle speeds while average vehicle speeds through the corridor as a whole were based on the VISSIM micro-simulation results.

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The SR 68 Scenic Highway Study is an excellent example of collaboration among stakeholders leading to innovative solutions. Innovative project concepts, informed through state-of-the-art analysis tools included roundabout corridors (per NCHRP Report 772: Evaluating the Performance of Corridors with Roundabouts), low-cost safety countermeasures, and wildlife crossing treatments and enhancements. The preferred Roundabout Corridor Concept best maintains the rural highway's scenic quality consistent with its Scenic Highway designation, will significantly improve operations, reliability and safety for motorists while better accommodating bicycle/pedestrian connectivity, decrease vehicular emissions and reduce incidences of wildlife roadkill.

Care was taken to ensure that all the corridor concepts under consideration would be compatible with concurrent planning efforts for the Monterey Regional Airport, Laguna Seca Raceway and the Ferrini Ranch development. Specifically, SR 68 Scenic Highway Plan data was shared and future SR 68 access modifications under consideration at these properties were incorporated into the conceptual layouts. The outcome of the study has also directly led to the incorporation of specific multimodal and wildlife crossing improvements into the draft 2018 RTP update and the Measure X Expenditure Plan.

The effectiveness of the SR 68 Scenic Highway Plan can be considered immediate. As a direct result of its approval by the TAMC Board in August 2017 and combined with its' comprehensive and multi-disciplinary technical approach and broad-based community/stakeholder support, the process from planning study to an approved PID/PSR-PDS was completed by January 2018, less than six months, and in time for the plan to receive funding for PA&ED in the 2018 STIP. The environmental phase of the project was initiated in 2018-2019. This is a testament to the Smart Mobility Framework process that when followed better ensures that a planning study will still include many of the requisite elements and information needed for the State's project initiation and approval process. Identification of the SR 68 preferred corridor concept and supporting investment priorities is timely given that voters of Monterey County successfully passed a 3/8 cent sales tax referendum Measure X (November 2016). Measure X has specifically earmarked $50 million in local sales tax revenue for improvements to the SR 68 corridor (TBD). The findings and recommendations of the SR 68 Scenic Highway Plan serves to inform this investment plan for future programming. The study also provides direction for how these improvements should be phased over time (immediate-, short-, medium- and long-term) to ensure independent utility for each phased improvement and to allow for additional/alternative funding sources to be potentially identified and leveraged with the local Measure X funding to better facilitate programming over a 20-year timeframe (i.e., SB-1). Lastly, the study provides TAMC a framework and methodology for performance based planning and programming techniques consistent with the federal FAST-Act.

MEASURE X
EXCELLENT TRANSPORTATION

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