

MINI-DESIGN CONCEPT REPORT
LA QUINTA ROAD AND MARIPOSA RANCH ROAD PAVING PROJECT
NOGALES, ARIZONA



August 10, 2023

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CITY OF NOGALES

ENGINEERING DEPARTMENT

August 10, 2023

Chris Vertress
Transportation Program Administration
Southeastern Arizona Governments Organization
1403 West Highway 92
Bisbee, Arizona 85603
(520) 432-5301 Extension 209

RE: LA QUINTA ROAD AND MARIPOSA RANCH ROAD RECONSTRUCTION PROJECT
SURFACE TRANSPORTATION BLOCK GRANT PROGRAM

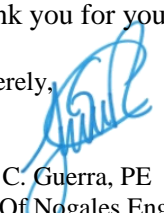
The City of Nogales is very pleased to submit this Mini-Design Concept Report for a Surface Transportation Block Grant for the proposed La Quinta Road and Mariposa Ranch Road Reconstruction Projects. We are respectfully requesting a grant of \$1,814,190 for the road surface improvements. The City of Nogales will apply for AZ SMART Fund Program in the amount of \$109,659 for local matching funds for a total project cost of \$1,923,849. The project involves the reconstruction of a 2,602 - feet long segment of La Quinta Road and Mariposa Ranch Road See attached a location map.

The proposed street improvements will have a direct and significant economic benefit to the Nogales regional economy. As home to three major land ports of entry with Mexico, our transportation system is the life blood of the community, and La Quinta Road and Mariposa Ranch Road serves a major industrial park. Improvement of these roads is critical to facilitating the import/export operations of the local businesses, preserving jobs, and fostering private capital investment. The improvements will also provide benefits by improving the road condition and reducing maintenance costs for area business employees, customers, suppliers, and shippers accessing the properties on a routine and regular basis. La Quinta Road is the main access road for the U.S. Customs of Border Protection and is the main access to vacant industrial parcels. In a similar manner, Mariposa Ranch Road is the main access to existing warehouses and the vacant industrial park named "La Loma Grande" (<https://www.facebook.com/lginustrialpark/>).

Unfortunately, without the combined grant funding sources through the AZ SMART Program and the Surface Transportation Block Grant, the project will not be able to be undertaken by the City of Nogales. We sincerely hope and trust you will look favorably on this application and approve this project for the requested \$1,814,190 grant amount. We are committed to providing the engineering design and testing services, and the on-going pavement preservation and maintenance for the improved street.

Thank you for your consideration.

Sincerely,


Juan C. Guerra, PE
City Of Nogales Engineer

B. INTRODUCTION

The project consists of the pavement of approximately a combined 2,602 feet long on La Quinta Road and Mariposa Ranch Road in the City of Nogales, Arizona. The proposed typical crown street cross section for La Quinta Road is 36 feet with a 3 feet wide concrete valley gutter on the south side (lowest) of La Quinta Road. The project connects with Mariposa Road (SR189). In a similar manner, Mariposa Ranch Road is 40 feet pavement section with a 6 feet concrete valley gutter in the middle of the road.

The functional classification for La Quinta Road is Urban Local and for Mariposa ranch Road is Urban Minor Collector. (See-attached attachment "A"). The estimated total construction cost is \$1,923,849. The Arizona Department of Transportation will bid and administrate the construction.

The existing pavement cross section consists of 7" AC over 8" ABC. These roads were paved in 1991. The La Quinta Road has a 6" vertical curb without a concrete valley gutter. The average longitudinal slope for La Quinta Road is approximately 0.5%. Surface drainage runs in the westerly direction and discharges into a drainage channel at the intersection of La Quinta and Mariposa Ranch Road.

C. BACKGROUND DATA

1. Purpose and Justification

The main objective of these projects is to improve the local economy by paving this commercial/industrial zone that is in a dilapidated condition. Frequently the City receives property owner's complaint about the existing road conditions. At the time of this report, it is pending to obtain a 5 year crash data from the City of Nogales Police Department.

2. Project Development

There is no expected environmental impact by this project. No utilities will be replaced within the project limits. However, as part of any paving project, it is necessary to adjust existing sanitary sewer manholes covers and water valves. The project consists of the removal of the existing pavement and replace it with a new pavement section of 7" AC over 8 inches of ABC. If accepted, the City of Nogales Engineering Department will complete the plan and profile by November 2022. Once the construction documents are complete, the project will be reviewed and approved by the ADOT's project manager team before the project bidding.

3. Original and Subsequent Construction Projects

The land use is commercial / industrial. This road was paved in 1991. The existing road presents significant block and alligator cracking. There is no geotechnical report prepared for this project at the time of this report. The posted speed limit is 25 MPH. No public meeting has been held at this time.

D. PROJECT SCOPE

The scope of this project is the reconstruction of 36 foot wide paved roadway for approximately 2,602 feet and includes the following items:

- a. Removal of existing surface materials;
- b. Grading for new pavement
- c. Layout 7" AC over 8" ABC
- d. Traffic control
- e. Road Striping

The proposed x-section for La Quinta Road is a cross-slope with a 3 foot concrete valley gutter on the south side. For the Mariposa ranch Road, the proposed x-section is an inverted crown with 6 foot concrete valley gutter on the middle of the road.

E. ENVIRONMENTAL PROJECT DEVELOPMENT CONSIDERATIONS

1. Environmental requirements.

The project is within an industrial zone surrounded by residential, commercial and industrial properties. The following table depicts the expected environmental impacts:

Animal and Plants	No Impact
Wetland & Riparian	No Impact
Floodplain Encroachment	Project is within a floodplain zone AE but surface drainage will not be altered
Section 401/404	No Impact
Section 4(f) Impacts	No Impact
Air Quality	Air Quality will be improved after pavement
Social or Economic Impact	A positive economic impact is expected after pavement
Cultural Resources Investigation	No Impact
Scenic or Historic Routes	No Impact

2. Construction Contract Method

The construction contract will be awarded to the lowest bidder in accordance to ADOT LPA manual and City of Nogales Purchasing Policy.

3. Geotechnical and Drainage Requirements

Surface drainage will remain the same, in the westerly and southerly direction for La Quinta Road and Mariposa Ranch Road respectively. The proposed paving cross section will be typical crown with a 7" AC over 8" ABC.

4. Critical Outside Agency Involvement

There is no expected involvement by any other outside agency or utility company.

5. Right-of-Way Requirements

All construction will be within the 60 feet City of Nogales Right-Of Way. No need for a temporary construction easement.

6. Utility Relocation Requirements

No utilities are expected to be replaced within the project limits. However, as part of any paving project, it is necessary to adjust existing sanitary sewer manholes covers and water valves.

7. Traffic Requirements

Traffic control plans will be prepared and implemented at the time of construction. Business owners will be allowed to ingress and egress at any time.

8. Seasonal Considerations

There is no planned landscape within the project limits. The construction activities are planned outside of the monsoon season to avoid construction delays or damages caused by storm water.

9. Design Criteria

The pavement design will be prepared in accordance to ADOT standard specifications. A geotechnical report will be prepared for this project to justify the recommended cross section of 7" AC over 8" ABC used for another industrial road with the same characteristics.

F. ESTIMATION COST

The estimated construction cost is \$1,923,849 (including 5.7% local matching funds of \$109,659). The funding sources for this project are as following 94.3% from the Surface Transportation Block Program, and if approved, 5.7% local matching funds from the AZ SMART fund Program.

It is very probable that based on the scope of work; there is no need to hire a consultant-engineering firm to prepare plan and profiles, only a soils report to confirm the pavement cross section used in a contiguous industrial road in the same location.

ITEM #	ITEM DESCRIPTION	Unit	Quantity	Unit Cost	Amount
1	MOBILIZATION AND DEMOBILIZATION	LS	1	\$ 40,000	\$ 40,000
2	PREPARATION AND IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN	LS	1	\$ 10,000	\$ 10,000
3	MAINTENANCE AND PROTECTION OF TRAFFIC	LS	1	\$ 20,000	\$ 20,000
4	CONSTRUCTION SURVEYING AND STAKING	LS	1	\$ 30,000	\$ 30,000
5	ROADWAY GRADING	SY	10,247	\$ 7	\$ 71,729
6	ROADWAY EXCAVATION AND DELIVER IT TO CON PW YARD	CY	3,131	\$ 30	\$ 93,930
7	7" AC PAVEMENT REPLACEMENT PER PIMA COUNTY SPECS. , PER SOIL REPORTS	TON	3,900	\$ 200	\$ 780,000
8	8" AGGREGATE BASE 95% COMPACTED PER SOILS REPORTS	TON	4,554	\$ 70	\$ 318,780
9	SAWCUT	LF	120	\$ 2	\$ 240
10	STRIPING AND RISE PAVEMENT MARKING PLANS PER PIMA COUNTY STA. DET. YDS6-D40 WITH RPM	LS	1	\$ 30,000	\$ 30,000
11	MANHOLES ADJUSTMENTS, F & C	EA	4	\$ 700	\$ 2,800
12	WATER VALVES ADJUSTMENTS	EA	4	\$ 500	\$ 2,000
13	MATERIAL TESTING (ABC, AC, PCC), INCLUDE THE FOLLOWING ITEMS: AMBIENT TEMPERATURE, AC TEMPERATURE, COMPACTIONS, ROLLING PATTERNS)	LS	1	\$ 20,000	\$ 20,000
14	TACK OIL	GAL	1,025	\$ 8	\$ 8,200
15	SURVEY MONUMENTS (SURVEYOR IS RESPONSIBLE FOR GETTING STATE PLANE COORDINATES FOR EVERY EXISTING SURVEY MONUMENTS BEFORE REMOVING)	EA	6	\$ 700	\$ 4,200
16	DRIVEWAY DEMOLITION & RECONNECT	EA	3	\$ 2,000	\$ 6,000
17	MILL EXISTING AC LAYER 4" AND DELIVER IT TO CON PW YARD	SY	10,247	\$ 10	\$ 102,470
18	10" PORTLAND CEMENT CONCRETE PER SOIL REPORT W/ FIBER-REINFORCEMENT	CY	328	\$ 420	\$ 137,760
19	6' CONCRETE VALLEY GUTTER 8" THICK PER PLANS (N MARIPOSA RANCH)	CY	277	\$ 420	\$ 116,340
20	3' CONCRETE VALLEY GUTTER 8" THICK PER PLANS (W LA QUINTA RD)	CY	70	\$ 420	\$ 29,400
21	ALLOWANCE FOR UNFORSEEN CONDITIONS (ALL ITEMS TO BE APPROVED BY THE CITY ENGINEER AND PUBLIC WORKS DIRECTOR)	LS	1	\$ 100,000	\$ 100,000
					\$ 1,923,849

G. ITEMIZED ESTIMATION COST

Project Phase/Type of Work	Estimated Cost
Preliminary Engineering-Design (Include ADOT Review Fees)	\$0
Right-of-Way	\$0
Utility Relocation	\$0
Other (Contingency)	\$100,000
Construction	\$1,823,849
Total Project Cost*	\$1,923,849

H. LOCAL MATCH

The estimated total construction cost is \$1,923,849 (including 5.7% local matching funds of \$109,659). If grant awarded, the funding sources for this project will be as following 94.3% from the Surface Transportation Block Program, and if approved, 5.7% local matching funds from the AZ SMART fund Program.

I. VICINITY MAP



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J. SAFETY

Signage and striping will be added to this project to increase safety. In a similar manner, the City of Nogales will install additional street lights to improve the safety of drivers and pedestrians.

K. FREIGHT MOVEMENT/ECONOMIC VITALITY

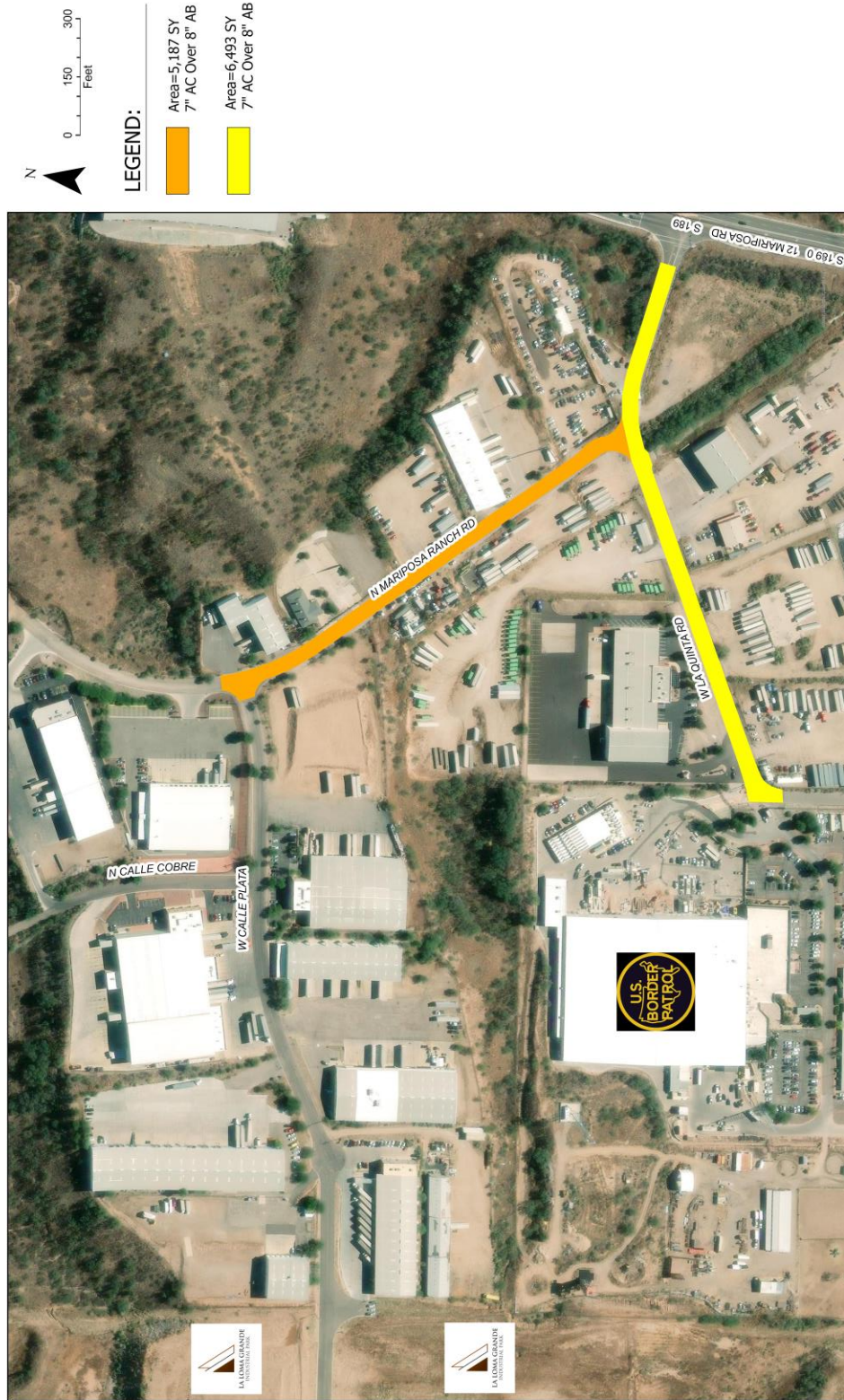
The City of Nogales has a population of 20,288 and is located on the US/Mexico international border with 3 land ports of entry and 1 air port of entry. The greater Nogales border area is home to a thriving Maquiladora industry and \$30 billion of goods enter the US market through the community. That trade is dependent on a good transportation system. These two roads serve a major industrial area in the City providing significant employment opportunities to area residents. The street carries approximately 5,130 vehicles per day on average with a high volume of truck traffic. The replacement pavement will be designed to withstand the truck traffic loads. The proposed street improvement will serve to enhance the economic competitiveness of the City of Nogales and induce private job creation and capital investment by the benefited developments. All businesses to benefit from the improvements considered are base industries.

L. SYSTEM PRESERVATION AND IMPROVEMENT

La Quinta Road is federally classified as Urban Local while Mariposa ranch Road is federally classified as Urban Minor Collector. La Quinta Road connects with Mariposa Road (SR 189). La Quinta is the only access to the U.S Border Patrol facility in Nogales.

B. PROPOSED PAVEMENT PROJECT LIMITS

La Quinta Road and Mariposa Ranch Road
Proposed Paving Plan



N. PHOTOS OF EXISTING CONDITIONS



La Quinta Road



La Quinta Road



Mariposa Ranch Road



Mariposa Ranch Road