



**City of La Vernia**  
**REGULAR CITY COUNCIL MEETING**  
City Council Chambers of La Vernia City Hall  
102 E. Chihuahua Street, La Vernia, Texas 78121  
&  
**VIA TELEPHONE CONFERENCE**

July 9, 2020  
6:30 PM

**USING TELEPHONE OR MOBILE DEVICE:** To listen to the meeting, please use the phone number and Conference ID below.

**Toll Dial-In Number: 1-512-717-4201**

**Toll-Free Dial-In Number: 1-800-717-4201**

**Conference ID: 130-2088 #**

To address the Council, please select \*5 on your phone; this will place you in queue for speaking. At the appropriate time the City Secretary will call upon each individual separately.

A recording of the conference will be made and will be available to the public in accordance with the Open Meetings Act.

**AGENDA**

**1. Call to Order**

**2. Citizens to be Heard-**

To address the Council, please select \*5 on your phone (via teleconference information provided above); this will place you in queue for speaking. At the appropriate time the City Secretary will call upon each individual separately.

Persons may submit questions or comments for items on the agenda by email to: [bporter@lavernia-tx.gov](mailto:bporter@lavernia-tx.gov). Questions or comments submitted by email must be received by the City Secretary at least 1 hour prior to the scheduled start of the meeting in order to be presented to the City Council during the meeting.

**3. Consent Agenda**

*(All consent agenda items are considered routine by City Council and will be enacted by one motion. There will be no separate discussion of these items unless a Councilmember requests an item be removed and considered separately.)*

- A. Minutes from the June 11, 2020 Regular City Council Meeting
- B. La Vernia Police Department – Reports, Traffic Violations & Arrests; and Number of Occurrences by Offense for the month of June;
- C. Check Register and financial report

**4. Discussion/Action**

- A. Discuss and consider action on which streets to include on FY 2020 Street Construction Project.

- B. Discuss and consider action on the approval of going out for bid to extend and repair the filter plant located on CR 342.
- C. Discuss and consider approving bids for upgrading park fixtures to automatic dispensers to aid with keeping the rooms sanitized and authorize City Administrator to seek reimbursement through Cares Act Grant, as the items have not been budgeted for.

**5. Discussion Only**

- A. Discussion on Budget Meetings
- B. Discussion on Sign Ordinance

**6. Items Specific to Future Line Items on the Agenda**

**7. Adjourn**

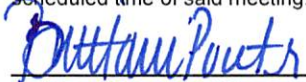
**DECORUM REQUIRED**

Any disruptive behavior, including shouting or derogatory statements or comments may be ruled out of order by the Presiding Officer. Continuation of this type of behavior could result in a request by the Presiding Officer that the individual leave the meeting, and if refused, an order of removal.

The City Council for the City of La Vernia reserves the right to adjourn into executive session at any time during the course of this meeting to discuss any of the matters listed above, as authorized by the Texas Open Meetings Act, Texas Governmental Code §551.071 (Consultation with Attorney), §551.072 (Deliberations about Real Property), §551.073 (Deliberations about Gifts and Donations), §551.074 (Personnel Matters), §551.076 (Deliberations about Security Devices), and §551.087 (Economic Development), and any other provisions under Texas law that permits a governmental body to discuss a matter in closed executive session.

The City of La Vernia City Council meetings are available to all persons regardless of disability. This facility is wheelchair accessible parking spaces are available. Requests for accommodations, should you require special assistance, must be made 48 hours prior to this meeting. Braille is not available. Please contact the City Secretary at (830) 779-4541 or email [bporter@lavernia-tx.gov](mailto:bporter@lavernia-tx.gov).

I, the undersigned authority, do hereby certify that the above Notice of Meeting of the governing body of the above named La Vernia City Council is a true and correct copy of said Notice and that I posted true and correct copy of said Notice on the bulletin boards, of the City Hall of said City of La Vernia, Texas, a place convenient and readily accessible to the general public at all times, and said Notice was posted on **July 3, 2020 at 5:30 P.M.** and remained so posted continuously for at least 72 hours proceeding the scheduled time of said meeting.

  
\_\_\_\_\_  
Brittani Porter, City Secretary

**MASKS ARE REQUIRED UPON ENTRY**



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City Council Chambers of La Vernia City Hall  
102 E. Chihuahua Street, La Vernia, Texas 78121  
&  
**VIA TELEPHONE CONFERENCE**

June 11, 2020  
6:30 PM

**Minutes**

**1. Call to Order** – Mayor Gregory called the meeting to order at 6:30 and declared a quorum. All members present.

**2. Citizens to be Heard-** There were no citizens to be heard.

**3. Consent Agenda**

*(All consent agenda items are considered routine by City Council and will be enacted by one motion. There will be no separate discussion of these items unless a Councilmember requests an item be removed and considered separately.)*

- A. Minutes from the May 14, 2020 Regular City Council Meeting
- B. La Vernia Police Department – Reports, Traffic Violations & Arrests; and Number of Occurrences by Offense for the month of May;
- C. Check Register and financial report

**MOTION: Councilwoman Recker made a motion to approve the consent agenda, seconded by Councilman Hennette. Motion passes: 5-0.**

**4. Discussion/Action**

**A. Discuss and consider action on the appointment of Mayor Pro-Tem**

Mayor Gregory stated Councilman Cormier had it for many years due to tenured. He stated he chose Councilman Poore to serve as Mayor Pro-Tem.

**MOTION: Councilman Hennette made a motion to appoint Councilman Poore as Mayor Pro-Tem, seconded by Councilman Oates. Motion passes: 5-0.**

**B. Discuss and consider action on park expenses to upgrade to all automatic fixtures in the restrooms and authorize City Administrator to seek reimbursement through Cares Act Grant**

City Administrator stated she had been in contact with new Grant Writer for Wilson Co. and she stated the expenses would be a pro rata share for each city with no other reimbursements. Grant Writer stated she would help write the grant to get it approved. Councilman Oates stated park is long overdue for fixtures. City Administrator advised all fixtures would be automatic to include soap dispensers. Council requested to see two more bids prior to approval.

**C. Discuss and consider action on which streets to include on the FY 2020 Street Construction Project.**

Mayor Gregory stated that we want to nick CR 342 as believes we can push back CR 342 to next year. Recommendation is to replace CR 342 and inject Forrest in place and

still stays with Industrial Dr. Get recommendation from CEC and label 1-5, depending on how extensive the repairs and let CEC do the bid.

**D. Discuss and consider action authorizing CEC to go out for FY 2020 Street Bid.**

Mayor Gregory stated we would circle back around to next meeting so we can get the final documents from CEC and go out for bid.

**E. Discuss and consider action on authorizing the City Administrator to discontinue task order with M&S Engineering on the Unified Development Code.**

Mayor Gregory stated that we are pulling the last project as the goods have diminished. CEC has agreed to pick this up and to it to the finale. He stated the recommendation from Council is to move this project to CEC for completion.

**MOTION:** Councilman Poore made a motion to discontinue the task order with M&S Engineering on the Unified Development Code, seconded by Councilman Hennette. **Motion passes: 5-0.**

**F. Discuss and consider action authorizing the City Administrator to retain CEC to prepare the Unified Development Code.**

Line items E & F were discussed simultaneously.

**MOTION:** Councilman Poore made a motion to authorize City Administrator to retain CEC to prepare the Unified Development Code, seconded by Councilwoman Hutchinson. **Motion passes: 5-0.**

**5. Resolution**

**A. Discuss and consider action on amending previous resolution 031413-01 and approve Resolution 061120-01 to increase Water Meter Installation Rates.**

**MOTION:** Councilman Oates made a motion to approve increase in water meter installation rates, seconded by Councilwoman Recker. **Motion passes: 5-0.**

**6. Discussion Only**

**A. Discussion on Pay Scale.**

Recommendation was to have the committee re visit and have any suggestions brought to council.

**B. Discussion on Juvenile Curfew**

Councilman Poore stated he was ok with everything in the ordinance today.

**C. Discussion on setting a date for a joint Planning and Zoning and City Council meeting to review Sign Ordinance.**

Recommendation to let everything pass over so we can all get together in one room for discussion.

**7. Items Specific to Future Line Items on the Agenda**

**8. Adjourn** – Councilman Hennette made a motion to adjourn the meeting, seconded by Councilwoman Hutchinson. Meeting was adjourned at 7:39 PM.

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Robert Gregory, Mayor

ATTEST:

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Brittani Porter, City Secretary

La Vernia Police Department  
Enforcement Statistics  
March 2020

<b>Case Type</b>	
Criminal Complaints	9
Incident	36
	<hr/>
<b>Total</b>	<b>45</b>

**CRIMINAL COMPLAINT - Offense Code**

PARAPHERNALIA	1	
DUTY STRIKE FIXED OBJECT	1	
CRIMINAL TRESPASS	1	
POSS CS PG 3	1	SUSPECT ARRESTED
CRIMINAL MISCHIEF	1	
POSS CS PG 1	1	SUSPECT ARRESTED
EVADING WITH MOTOR VEHICLE	1	
UUMV	1	SUSPECT ARRESTED
ASSAULT	1	
	<hr/>	
<b>Total</b>	<b>9</b>	

**INCIDENT - Offense Code**

ACCIDENT INVOLVING DAMAGE TO V	10
ALARM	6
ASSIST OTHER AGENCY	4
INFO	9
WELFARE CONCERN	1
DISTURBANCE	1
SUSPICIOUS PERSON	1
CHILD CUSTODY	1
ASSIST PUBLIC MEDICAL	1
LOST PROPERTY	1
EMERGENCY DETENTION	1
	<hr/>
<b>Total</b>	<b>36</b>

**Citations**

VIOLATIONS	11
WARNINGS	06
	<hr/>
<b>Total</b>	<b>17</b>

Notes: Protest at City park had small group of protestors and went on with no complaints, injuries or safety issues.  
High School graduation and NIOLA were also eventful with no injuries, complaints or police intervention.



Bruce Ritchey  
Chief of Police



June 24, 2020

City of La Vernia  
Attn: Ms. Yvonne Griffin  
PO Box 225  
La Vernia, Texas 78121-0225

Re: City of La Vernia Street Assessment  
CEC Project No. E0305900

Dear Ms. Griffin,

Submitted herein is CEC's pavement assessment and recommendation report for the above referenced project. The study was performed in general accordance with the proposal that Mr. John Mooneyham, PE submitted.

It has been a pleasure to work for you on this project and we appreciate the opportunity to be of service. Please notify us if there are questions or if we may be of further assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Frank M. Jaster", is written over a circular professional seal.



6/24/2020

Frank M. Jaster, P.E.  
CQM Senior Project Manager  
**CIVIL ENGINEERING CONSULTANTS**  
CEC Registration # - 2214

Copies submitted: (1) Electronic

This document is not to be used for bidding, construction, and permit purposes.

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## **1 EXECUTIVE SUMMARY**

Civil Engineering Consultants (CEC) was retained by the City of La Vernia (City) to provide the assessment of the pavements within the city limits and provide recommendations for the remediation of those streets. The assessment consisted of 38 streets that total approximately 8.31 centerline miles of visually assessed roadway which included scoring the streets for distresses.

A summary of the findings and pertinent recommendations are as follows:

1. The pavements were evaluated based on condition assessment. All scores are summarized in Appendix A. Street Rating Scores (SRS which ranged from 1 to 10) was grouped as failed to poor condition (1 to 5), fair (6), and good (7 to 10). 15 streets, or 32.3% scored in the good range, 6 streets, or 13.5% scored fair, and 16 streets, or 54.3% scored in the poor range.
2. Based upon the SRS values, the street in need of either reconstruction or rehabilitation is County Road 342. The City of La Vernia decided that this roadway will more likely be addressed at a later date. The next two streets with low SRS values were Industrial and Jessica.
3. Also based upon the information in the previous assessment report, approximately \$183,000 was estimated for street maintenance, pothole repair, fog seals, and surface treatments. This amount more likely is not adequate for reconstruction or rehabilitation of the poor streets identified in the assessment.
4. There needs to be a focus on pavement preservation, which is maintain the streets which are in fair and good condition and working on 1 major street either each year or every other year.

Please note that this executive summary does not fully relate our findings and opinions. Those findings and opinions are only presented though our full report.

## **2 INTRODUCTION**

### **2.1 General**

CEC was selected by the City to provide a pavement assessment of their street system. CEC was tasked with evaluating the existing roadway's Street Rating Scores (SRS) and to provide preventative maintenance and rehabilitation recommendations to streets' system based upon the distress results. The evaluation was performed on streets totaling approximately 43,874 feet or 8.31 miles in length.






### **2.2 Scope of Work**

The primary objective of this project was to gather information of surface conditions of the streets' system within the City and to present the SRS scores to the client. These scores were utilized to develop maintenance applications and reconstruction/rehabilitation plans for the system. The objectives were accomplished by:

1. Conducting a manual assessment and documentation of the streets to evaluate the existing pavement's surface conditions.
2. Utilizing the SRS score for the streets, CEC developed pavement repair options which are included later in this report.
3. As an added value to our report, CEC has included items to aid in understanding the importance of pavement maintenance. Following is a discussion of traffic impact, the foundation (what type of subgrade material is the area), and environmental conditions.

### **2.3 Traffic Impact**

Equivalent Single Axle Load (ESAL) is used to establish the loading characteristic applied to pavements. The number or value of the ESAL is dependent upon the type of axles, number of tires, and tire pressure or axle load applied. Each axle load has a different equivalency factor to calculate the ESAL. The chart on the following page visually demonstrates what an ESAL represents, i.e. 2 garbage collection trucks or 2,000 light vehicles such as cars and pickups approximately equate to 1 ESAL.

<u>Number of Vehicles</u>		<u>Number of 18-kip ESALs</u>
2,000	 or	1
20		1
4		1
2		1
1		2.5

The City of San Antonio (COSA) recommends an ESAL value of 500,000 for streets classified as “Local Type A streets without bus traffic”<sup>1</sup> which are more likely what the streets within the City’s limits are experiencing. Most of the heavy wheel loads traveling on most streets are weekly garbage trucks, delivery trucks (i.e. FedEx or UPS), and periodic moving vehicles.

#### 2.4 Subgrade Material

All pavement designs are based upon similar criteria, of which the subgrade foundation strength is one of the major components. The scope of this project did not include providing the in-situ pavement thickness and subgrade material properties. The subgrade strength value, known as the California Bearing Ratio (CBR) and Resilient Modulus is utilized in pavement design calculations to develop pavement layer thickness. When future rehabilitation or reconstruction plans are developed, the subgrade strength will be necessary and needs to be planned into the City’s long-term maintenance budget. The City or CEC can contact geotechnical firms to obtain a current cost for this work.

#### 2.5 Environmental Impact

Some of the major environmental conditions that impact pavement performance are freeze thaw (not typical in La Vernia), wet-dry cycles, and whether the subgrade materials have sulfates in them. For La Vernia, the major environmental issue is the wet-dry cycle. When significant rain fall is experienced or if a private residence’s irrigation system is leaking and a clay subgrade material is present, the clay has shrink-swell (dry/wet cycles) forces acting upon it which may potentially increase pavement distresses.

<sup>1</sup> City of San Antonio Design Guidance Manual, June 2008.

Also, the water intrusion mixed with a stabilized subgrade and sulfate soils also increases the pavement distress potential. It would be beneficial prior to the first rehabilitation and reconstruction project to test the subgrade soils for the presence of sulfates. It is a one-time test and the cost is relatively low.

### **3 PAVEMENT ASSESSMENT**

On June 2 and 4, 2020 CEC performed the field distress data collection for each street. The entire street system was assessed, distressed areas were identified and measured, and crack lengths were also measured. A scoring matrix was developed summarizing the evaluation and has been included in Appendix A.

As part of the assessment, documentation of the distresses was recorded in a spreadsheet and photographed. This has been included in Appendix A.

### **4 PAVEMENT MAINTENANCE AND REPAIR RECOMMENDATIONS**

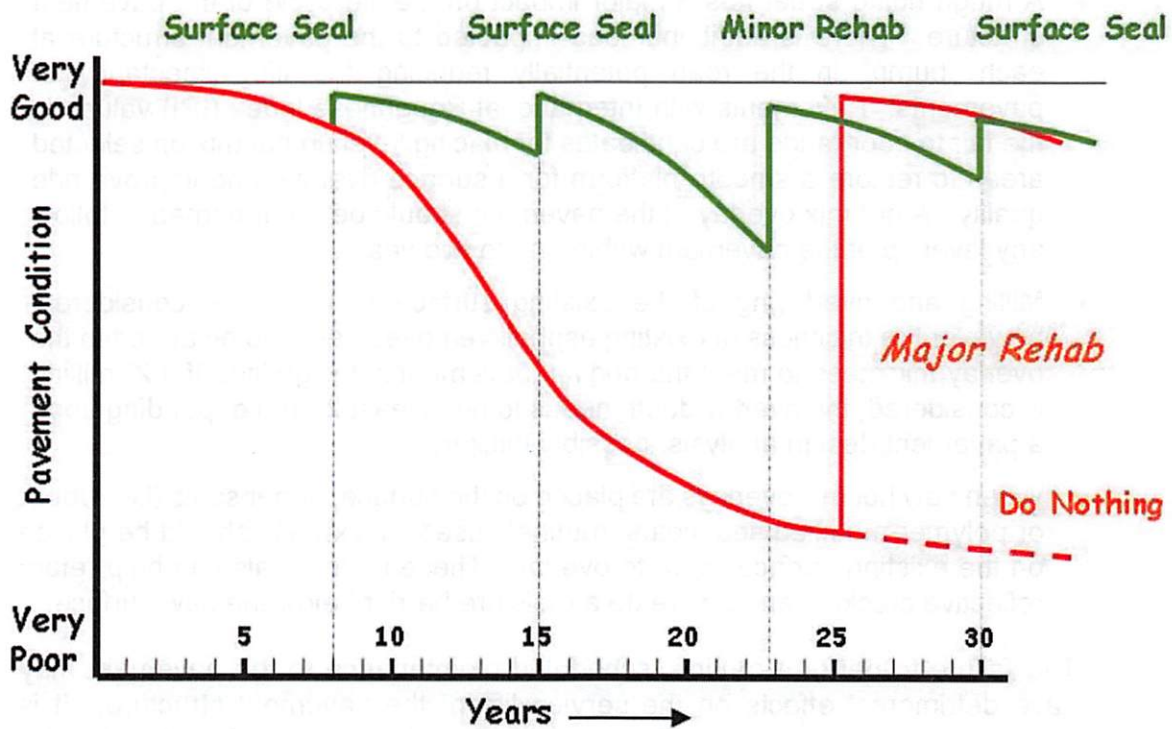
#### **4.1 Pavement Preservation and Preventive Maintenance Recommendations**

Preventive maintenance and preservation applications play an important role in preserving the streets' infrastructure and should be including the funding and plan once the City has established a sound pavement management system. The purpose of a preventive maintenance is to prevent premature deterioration of the asset, retard the progression of defects, and cost-effectively extend the life of the asset. The objective is to slow down the rate of deterioration and effectively increase the useful life of the asset. A preventive maintenance or preservation treatment is not determined by the type of application, but by the reason the application is selected.

A successful maintenance and rehabilitation program cannot function without the support of many features associated within a pavement management system (i.e. inventory, ongoing condition assessments, and the framework for the identification and prioritization of preservation applications). Timely maintenance and rehabilitation applications prevent accelerated deterioration of the pavement, provide a smooth pavement, and extend the useful life of the pavement. For cost-effective management of the City's pavement infrastructure, it is critical to apply the "right application to the right pavement at the right time".

The critical trigger level for making major improvements to the pavement is an SRS value of 5. Using crack seals, seal coats, micro-surfacing, or surface treatments for pavements with condition ratings below 5 is generally ineffective and results in a substantially reduced lifespan for the application. Once a pavement reaches a condition level of 4, it should be scheduled for reconstruction or rehabilitation. Only reconstruction or reclamation can return the pavement to a suitable condition level. Therefore, the goal of the pavement management system is to maintain as much of the network as possible above the condition rating of 5. The chart on the following page shows a typical pavement life cycle which detail deterioration functions that can be used to estimate when a specific street segment reaches one of the threshold values.

## Typical Pavement's Life Cycle



For the streets in the City with good to fair SRS scores, a general method of protection pavement preservation should be considered. Following are several preservation options for consideration:

- For most streets, a simple and relatively inexpensive crack seal program should be created. Although not aesthetically pleasing, the sealing of cracks is critical to reducing the infiltration of moisture into the pavement structure from the surface. Yearly the streets experiencing transverse and longitudinal cracks should be filled with a rubberize crack sealant as detailed in TxDOT Item 712<sup>2</sup> as part of this program. Pavement crack sealing should be performed every 3 years.
- Full depth, spot repairs of localized, extreme severity distressed areas to the subgrade elevation should be addressed prior to any surface application. These distresses typically “grow” quickly into larger areas that require more expensive repairs. Addressing these area early aids in reducing the number of more expensive future repairs and replacements. Use TxDOT Item 351 for these repairs.
- Over time, the intense ultra-violet rays produced by the sun, oxidizes the asphalt component in the hot and warm mix surfaces. Application of surface sealants (i.e. Micro-surface, slurry seal, or ONYX<sup>®</sup>) should be placed to rejuvenate any oxidized pavement surface. The specification for this product

<sup>2</sup> TxDOT's *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, 2004* and COSA's *Standard Specification for Construction, June 2008* have been used for all specifications shown in this report.

will be included in future reports. These surface applications extend the life of the pavements anywhere from 5 to 7 years.

- A rough riding street has a major impact on the life cycle of the pavement structure. There is additional load impacted to the pavement structure at each “bump” in the road potentially reducing the life expectancy of pavements. Pavements with International Roughness Index (IRI) values in the fair to poor range are candidates for placing level up hot mix on selected areas to restore a smooth platform for a surface overlay and improve ride quality. A hot mix overlay of the pavement should be programmed to follow any level up of the pavement within one to two years.
- Milling and overlaying of the existing surface can also be considered, however the thickness of existing asphalt removed needs to be added to the overlay thickness to meet the original pavement’s design life. If a 2” milling is considered, the overlay depth needs to be at least 2” and depending upon a pavement design analysis, possibly thicker.
- When new hot mix overlays are placed on the surface, under seals (i.e. rubber or polymer modified seal coats, routinely used by TxDOT) should be placed on the existing surface prior to overlay. These under seals can help retard reflective cracking and do create a moisture barrier below the new surface.

The failure to perform routine, scheduled maintenance to the pavement may have detrimental effects on the service life of the pavement structure. It is critical that the owner plan routine inspections and evaluations to determine the actual condition of the pavement.

#### 4.2 Summary of Recommendations

1. CEC recommends that all the cracks identified in the assessment are properly routed and sealed. Use TxDOT’s Item 712, rubberized crack sealant as the governing specification for this application. An estimated length of existing cracks at the time of the assessment is shown in Appendix A.
2. It is also recommended the full depth repair of any distressed (alligator cracked) areas. TxDOT Item 351 shall be specified for this construction. A complete list of the areas is shown in Appendix A.
3. A reassessment of the pavement within the next 2 to 3 years for additional distresses and cracking and to determine whether a surface sealant is necessary is recommended.
4. Construction cost estimates, using 2020-unit prices<sup>3</sup> as well as the various construction options for the various pavement options are also to be provided in Appendix B. Additionally, material specifications are provided for each pavement repair in Appendix C.
5. To optimize the available funds and to address preventative maintenance of

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<sup>3</sup> The Texas Department of Transportation’s (TxDOT) and City of San Antonio (COSA) monthly average bid prices were utilized for these unit prices.

the street system, CEC recommends addressing Jessica and Industrial which have 2 of the 3 lowest SRS. This leaves approximately \$110,000 to address preventative maintenance. Selecting Forrest Road, Silverado, Alexandria, Lauren, and Newton would result in approximately \$15,000 in contingency for any unexpected changes orders.

6. Lastly, CEC recommends that a reputable firm be contracted to represent the City by the observation and documentation the construction activity. CEC has the capability and experience to provide this work. CEC also recommends that only qualified contractors be allowed to bid on the construction or rehabilitation of the streets.

## **5 LIMITS AND CONDITIONS**

It is recommended that a qualified, professional engineering firm be contracted to prepare any required plans and specifications incorporating the recommendations herein. It is also recommended that the same firm who prepared the design documents be contracted to manage the construction of the project to ensure proper interpretation and implementation of the recommendations contained in this report in the interest of the best compromise between cost and performance. CEC is qualified to prepare the design documents and to manage the construction activities of any of these projects.

The professional services that form the basis for this report have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable engineers practicing in the same locality. No other warranty, either expressed or implied, is made as to the professional advice set forth.

The results, conclusions, and recommendations contained in this report are directed at and intended to be utilized within the scope of work as presented in the report. This report is not intended to be used for any other purposes. CEC makes no claim or representation concerning any activity or condition falling outside the specified purposes to which this report is directed, said purposes being specifically limited to the scope of work as defined in said report. Inquires as to said scope of work or concerning any activity or condition not specifically contained therein should be directed to CEC for a determination and, if necessary, further investigation.

**APPENDIX A**  
**CEC'S ASSESSMENT SUMMARY AND PHOTOS**



La Vernia Pavement Evaluation Street Location and Scores

Num	Street	From	To	Width	Length	Shallow Rut	Deep Rut	Depression	Edge Fall Showing	Pot holes	Patching	Alligator Cracking	Block Cracking	Long Cracking	Trans Cracking	Ride G F P	Score	Comment
1	Hillcrest	US 87	Dead End	25	2000	-	-	M	-	-	L	L	-	M	-	F	6	Heavy distress by Cur-de-sac and edge. Alligator failure at address 118
2	Dry Hollow	City Limit	Chihuahua	25	2550	L	-	M	M	L	L	M	-	L	-	P	4	Edge failure to include Chihuahua pavement failures
3	Hickberry	FM 775	Kimball	20	500	-	-	-	-	-	-	M	-	M	-	G	6	Edge and center distress
4	Kimball	FM 775	Hickberry	15	1500	M	L	-	L	-	L	H	-	M	-	F	5	Edge distress. Rutting
5	Becek	Crows	McCoy	30	750	-	-	L	-	-	L	-	-	L	-	G	7	Distress mainly edge covered by seal coat.
6	McCoy	US 87	Kingsdale	25	1300	-	-	L	-	-	-	-	-	L	-	F	7	Good section, seal coated.
7	Kingsdale	McCoy	Crows	25	700	-	-	-	-	-	M	-	-	L	L	F	6	Outdated pavement, rutted.
8	Crew South	Angdale	US 87	25	1200	L	-	L	-	L	-	-	-	-	-	F	6	Large pot holes, few depressions.
9	Crew North	US 87	Chihuahua	25	300	-	-	-	-	-	-	M	-	-	-	G	7	Alligator starting to form, moderate in amount.
10	Mulberry	Breck	Kingsdale	25	1100	-	-	L	-	-	-	-	-	-	-	G	8	High 7 in score, gave 8. Good ride
11	Nitch Point	FM 775	Col-de-sac	25	700	L	-	H	L	-	H	-	-	M	M	P	4	Outdated pavement, heavy distress with cracking
12	Watco	River St	FM 775	20-25	900	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	No road or pavement to rate.
13	King Street	Kyle Street	Forrest Road	15	300	-	-	-	-	-	-	-	-	-	-	F	8	Small section of pavement, Good.
14	Forrest Road	Dry Hollow	Col-de-sac	20	1000	-	-	L	-	L	L	-	-	L	L	P	5	Distress light, ride issue.
15	Prinz	River	Newton	15	750	-	-	-	-	-	L	-	-	L	-	F	8	Alligator starting minimal. Longitudinal light, ridge joint into fair condition.
16	Canfield	Nicholson	FM 775	20	1200	-	-	-	L	L	L	M	-	H	L	P	5	Ride is rough, drainage is poor.
17	River View	River St	Dead End/WVWP	10	800	-	-	-	M	M	L	-	-	L	-	F	5	Narrow pavement, one car. Outdated pavement, pot holes
18	Country Gardens	FM 775	Col-de-sac	25	4800	-	-	-	-	-	-	-	-	L	-	F	6	Longitudinal cracking very light, ride could be smoother.
19	Garden Bend	Country Gardens	Country Gardens	20	1150	-	-	-	-	-	-	-	-	-	-	G	9	New Pavement. Do nothing
20	Garden Field	Country Gardens	Col-de-sac	20	300	-	-	-	-	-	-	-	-	-	-	G	9	New Pavement. Do nothing
21	Kyle Street	Dry Hollow	Dead End	20	600	L	-	L	-	L	-	-	-	-	-	F	6	Depression minor, shallow rut minor
22	Industrial	Dead End	US 87	20	1100	-	-	L	H	M	L	-	-	L	L	F	3	Multiple failures, intersections with 87 hole. Multiple failures of distress types seen. Section in low creek bed area.
23	CR 342	Chihuahua	City Limit	20	2700	M	M	M	H	M	M	H	L	M	M	P	2	Moderate and alligator cracking.
24	Nicholson	Chihuahua	Dry Hollow	20	900	-	-	L	M	L	L	M	-	H	-	F	5	
25	D.L. West	SA St.	FM 775	25	800	L	-	L	M	-	L	M	-	H	-	F	4	Reflective cracking.
26	Drive Martin	Crows	McCoy	25	750	-	-	-	-	-	-	-	-	M	M	G	7	Longitudinal and Transverse cracking to be moderate.
27	River Road	Chihuahua	Dead End	20	2500	M	L	L	M	L	L	L	-	L	-	P	4	Edge failures and poor ride.
28	San Antonio Road	US 87	Warren	20	2000	-	-	L	M	L	L	-	-	L	-	P	5	Cracked concrete slab in section
29	Silverado/Warren	SA St.	US 87	30	1800	-	-	L	-	L	L	L	-	H	M	F	5	Sealed and open cracks, with oxidized pavement.
30	Alexandria	FM 1346	Silverado St	35	2248	-	-	-	-	-	-	M	-	H	M	F	5	Outdated pavement with heavy distress.
31	Lauren	Jessica St	Jessica St	35	948	-	-	L	-	-	M	M	-	H	L	F	5	Outdated pavement, heavy edge distress, with failures.
32	Jessica	Alexandria	Silverado St	30	1068	L	-	L	-	L	M	H	L	H	M	P	3	Outdated pavement, shallow pot holes, w edge cracking.
33	Newton	FM 775	River Street	20	900	-	-	L	-	-	-	-	-	L	-	F	6	Recently sealed, ride fair.
34	Ellise	5th Col-de-sac	Nth Col-de-sac	40	625	-	-	-	-	-	-	-	-	L	L	F	7	Outdated pavement, shallow pot holes, w edge cracking.
35	Jewels	5th Col-de-sac	Nth Col-de-sac	40	625	-	-	-	-	-	-	-	-	L	L	G	8	Outdated pavement.
36	Melissa	Jewels Dr	Col-de-sac	40	290	-	-	-	-	-	-	-	-	L	-	G	8	Outdated pavement.
37	Junior	FM 1346	Col-de-sac	40	960	-	-	-	-	-	-	L	-	L	L	F	7	Outdated pavement asphalt repair at Else Dr.
38	Kingsdale	McCoy	Mulberry	25	560	-	-	-	-	-	-	-	-	-	-	G	9	Good Pavement.

Feet Miles 43874 8.31

DISTRESS

L	M	H
Light	Moderate	Heavy

RIDE

G	F	P
Good	Fair	Poor

La Vernia Pavement Evaluation Streets in Poor Condition

Num	Street	From	To	Length	Shallow Rut	Deep Rut	Depression	Edge Fail Shoving	Pot holes	Patching	Alligator Cracking	Block Cracking	Long Cracking	Trans Cracking	Ride G F P	Score	Comment
2	Dry Hollow	City Limit	Chihuahua	2550	L	-	M	M	L	L	M	-	L	-	P	4	Edge failures to include Chihuahua pavement failures
4	Kimball	Hackberry	FM 775	1500	M	L	-	L	-	L	H	-	M	-	F	5	Edge distress.
11	Micah Point	FM 775	Cul-de-sac	700	L	-	H	L	-	H	-	-	M	M	P	4	Oxidized pavement, heavy distress.
12	Watco	River St	FM 775	900	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	No road or pavement to rate.
16	Canfield	Nucholson	FM 775	1200	-	-	L	L	L	L	M	-	H	L	P	5	Ride is rough, drainage is poor.
22	Industrial	Dead End	US 87	1100	-	-	L	H	M	L	L	-	L	L	F	3	Multiple edge failures, intersection with 87 failed.
23	CR 342	Chihuahua	City Limit	2700	M	L	M	H	H	M	H	L	M	M	P	2	Multiple failures, all distress types seen. Section in low creek bed area.
28	San Antonio Road	US 87	Warren	2000	-	-	L	M	L	L	L	-	L	-	P	5	Cracked concrete slab in section
29	Silverado/Warren	SA St.	US 87	1800	-	-	L	-	L	L	L	-	H	M	F	5	Sealed and open cracks, with oxidized pavement.
30	Alexandria	FM 1346	Silverado St	2248	-	-	-	-	-	-	M	-	H	M	F	5	Oxidized pavement with heavy distress.
31	Lauren	Jessica St	Jessica St	948	-	-	L	-	-	M	M	-	H	L	F	5	Oxidized pavement , heavy longitudinal cracking, and surface failures.
32	Jessica	Alexandria	Silverado St	1068	L	-	L	-	L	M	H	L	H	M	P	3	Oxidized pavement, heavy edge distress, with failures.

Feet 18714  
Miles 3.54

DISTRESS

L	M	H
Light	Moderate	Heavy

RIDE

G	F	P
Good	Fair	Poor

## La Vernia Sections and Percentages

Total Sections 38

Total feet 43874

Sections in good condition

Sections in good condition by feet

	Percent	Miles
15		
14160	32.27%	2.68

Sections in fair condition

Sections in fair condition by feet

6		
5900	13.45%	1.12

Sections in poor condition

Sections in poor condition by feet

16		
23814	54.28%	4.51

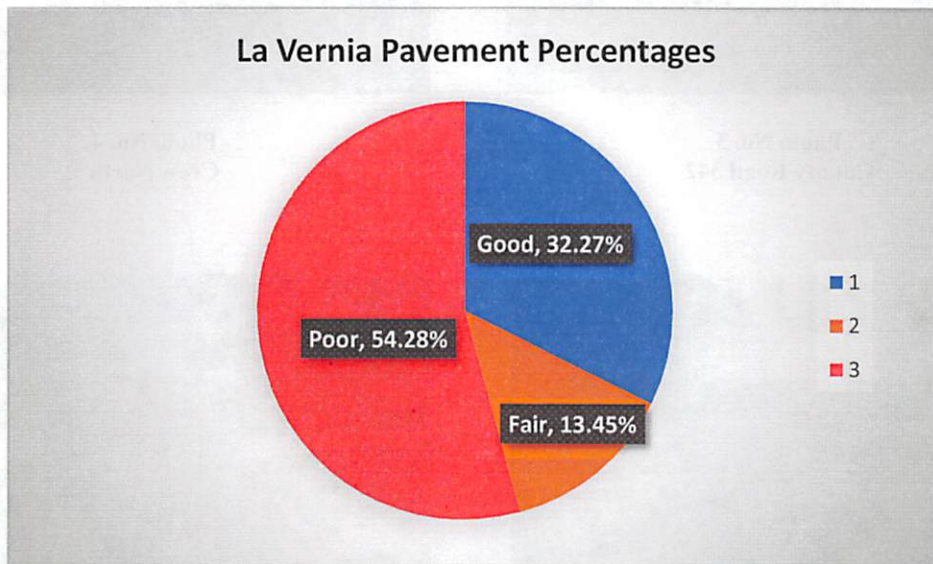




Photo No. 1  
Alexandria



Photo No. 2  
Canfield



Photo No. 3  
County Road 342



Photo No. 4  
Crew North



Photo No. 5  
Dry Hollow



Photo No. 6  
Hillcrest



Photo No. 7  
Industrial



Photo No. 8  
Jessica



Photo No. 9  
Kimball



Photo No. 10  
Kyle



Photo No. 11  
Lauren



Photo No. 12  
Micah Point



Photo No. 13  
River Road



Photo No. 14  
San Antonio



Photo No. 15  
Silverado



Photo No. 16  
Warren



Photo No. 17  
Watco

**APPENDIX B**  
**ESTIMATED CONSTRUCTION COSTS**

**Pavment Repair Options <sup>1,2</sup>**

	<b>Category</b>	<b>Cost LF</b>	<b>Cost SY</b>	<b>Cost SY 8"</b>	<b>Cost Hour</b>
1	Pavement Repair - 8" depth			\$55.00	
2	Mill 2" Pavement		\$2.50		
3	HMAC Overlay - 2"		\$13.00		
4	Crackseal w\ routing	\$2.50			
5	Surface Sealant		\$1.75		
6	Seal Coat with aggregate		\$3.00		
7	Micro-surface		\$4.00		
8	Slurry		\$3.75		
9	Fog Seal		\$3.50		
10	Ditch grading				\$150.00

<b>Location</b>	<b>Comments</b>			
Hillcrest	700 SY Pave repair + Surf Seal		\$13,888.89	\$38,500.00
Dry Hollow	Shoulder repair with RAP			
Hackberry	300 SY Pave repair + Surf Seal		\$2,777.78	\$16,500.00
Kimball	200 SY Pave repair + Surf Seal		\$6,250.00	\$11,000.00
Boeck	500 SY Pave edge repair + Surf Seal		\$6,250.00	\$27,500.00
McCoy	Crack seal approximately 1150 LF + Surf Seal	\$2,875.00	\$9,027.78	
Kingsdale	700 LF Crack seal + Surf Seal	\$1,750.00	\$4,861.11	
Crews South	75 SY Pave repair + Surf Seal		\$8,333.33	
Crews North	300 Pave repair + Surf Seal		\$2,083.33	\$16,500.00
Mulberry	Surf Seal		\$7,638.89	
Micah Point	Mill + Overlay		\$30,138.89	
Watco	Long range plan			
King Street	Surf Seal		\$1,250.00	
Forrest Road	Light mill + Surf Seal		\$9,444.44	
Prinz	40 SY Pave repair + Surf Seal		\$3,125.00	\$2,200.00
Canfield	600 LF Crack + 450 SY Pave Repair + Surf Seal	\$1,500.00	\$6,666.67	\$24,750.00
River View	Light mill + Surf Seal		\$2,222.22	
Country Gardens	Shoulder repair with RAP			
Garden Bend	Surf Seal in 2 to 3 years		\$6,388.89	
Garden Field	Surf Seal in 2 to 3 years		\$1,666.67	
Kyle Street	Shoulder repair with RAP			
Industrial	3 SY Pave repair + Overlay in 5 years		\$31,777.78	\$165.00
CR 342	Do not address			
Nicholson	60 SY Pave repair + Surf Seal		\$5,000.00	\$3,300.00
D.L. Vest	Surf Seal in 2 to 3 years		\$3,888.89	
Drive Martin	Crack seal 800 LF + 650 SY Pave Repair + Surf Seal	\$2,000.00	\$5,208.33	\$35,750.00
River Road	Shoulder repair with RAP			
San Antonio Road	Light mill + Surf Seal		\$22,222.22	
Silverado/Warren	3000 LF Crack seal + Surf Seal	\$7,500.00	\$15,000.00	
Alexandria	4000 LF Crack seal + Surf Seal	\$10,000.00	\$21,855.56	
Lauren	1500 LF Crack seal + Surf Seal	\$3,750.00	\$9,216.67	
Jessica	1500 LF Crack seal + Surf Seal	\$3,750.00	\$8,900.00	
Newton	250 SY Pave repair + Surf Seal		\$5,000.00	\$13,750.00
Elise	800 LF Crack Seal + 100 SY Pave repair + Surf Seal	\$2,000.00	\$6,944.44	\$5,500.00
Jewels	Surf Seal		\$6,944.44	
Melissa	Surf Seal		\$3,222.22	
Junior	650 SY Mill & Overlay + Surf Seal		\$20,741.67	
Kingsdale	Surf Seal		\$3,888.89	

**Note 1 - Prices do not include mobilization, signs and barricades, and close out of each street location. An additional 20% should be added to each street.**  
**Note 2 - All costs are 2020 values.**

Crack seal repair =	\$35,125.00
Pavement Repair =	\$195,415.00
Milling =	\$19,819.44
HMAC Overlay =	\$72,583.33
Surface Sealant =	\$105,827.78
<b>Total =</b>	<b>\$428,770.56</b>



**APPENDIX C  
SPECIFICATIONS**

## Item 340

### Dense-Graded Hot-Mix Asphalt (Small Quantity)



#### 1. DESCRIPTION

Construct a hot-mix asphalt (HMA) pavement layer composed of a compacted, dense-graded mixture of aggregate and asphalt binder mixed hot in a mixing plant. This specification is intended for small quantity (SQ) HMA projects, typically under 5,000 tons total production.

#### 2. MATERIALS

Furnish uncontaminated materials of uniform quality that meet the requirements of the plans and specifications.

Notify the Engineer of all material sources and before changing any material source or formulation. The Engineer will verify that the specification requirements are met when the Contractor makes a source or formulation change, and may require a new laboratory mixture design, trial batch, or both. The Engineer may sample and test project materials at any time during the project to verify specification compliance in accordance with Item 6, "Control of Materials."

- 2.1. **Aggregate.** Furnish aggregates from sources that conform to the requirements shown in Table 1 and as specified in this Section. Aggregate requirements in this Section, including those shown in Table 1, may be modified or eliminated when shown on the plans. Additional aggregate requirements may be specified when shown on the plans. Provide aggregate stockpiles that meet the definitions in this Section for coarse, intermediate, or fine aggregate. Aggregate from reclaimed asphalt pavement (RAP) is not required to meet Table 1 requirements unless otherwise shown on the plans. Supply aggregates that meet the definitions in [Tex-100-E](#) for crushed gravel or crushed stone. The Engineer will designate the plant or the quarry as the sampling location. Provide samples from materials produced for the project. The Engineer will establish the Surface Aggregate Classification (SAC) and perform Los Angeles abrasion, magnesium sulfate soundness, and Micro-Deval tests. Perform all other aggregate quality tests listed in Table 1. Document all test results on the mixture design report. The Engineer may perform tests on independent or split samples to verify Contractor test results. Stockpile aggregates for each source and type separately. Determine aggregate gradations for mixture design and production testing based on the washed sieve analysis given in [Tex-200-F](#), Part II.

- 2.1.1. **Coarse Aggregate.** Coarse aggregate stockpiles must have no more than 20% material passing the No. 8 sieve. Aggregates from sources listed in the Department's *Bituminous Rated Source Quality Catalog* (BRSQC) are preapproved for use. Use only the rated values for hot-mix listed in the BRSQC. Rated values for surface treatment (ST) do not apply to coarse aggregate sources used in hot-mix asphalt.

For sources not listed on the Department's BRSQC:

- build an individual stockpile for each material;
- request the Department test the stockpile for specification compliance; and
- once approved, do not add material to the stockpile unless otherwise approved.

Provide aggregate from non-listed sources only when tested by the Engineer and approved before use. Allow 30 calendar days for the Engineer to sample, test, and report results for non-listed sources.

Provide coarse aggregate with at least the minimum SAC shown on the plans. SAC requirements only apply to aggregates used on the surface of travel lanes. SAC requirements apply to aggregates used on surfaces other than travel lanes when shown on the plans. The SAC for sources on the Department's *Aggregate Quality Monitoring Program* (AQMP) ([Tex-499-A](#)) is listed in the BRSQC.

- 2.1.1.1. **Blending Class A and Class B Aggregates.** Class B aggregate meeting all other requirements in Table 1 may be blended with a Class A aggregate to meet requirements for Class A materials. Ensure that at least 50% by weight, or volume if required, of the material retained on the No. 4 sieve comes from the Class A aggregate source when blending Class A and B aggregates to meet a Class A requirement. Blend by volume if the bulk specific gravities of the Class A and B aggregates differ by more than 0.300. Coarse aggregate from RAP and Recycled Asphalt Shingles (RAS) will be considered as Class B aggregate for blending purposes.

The Engineer may perform tests at any time during production, when the Contractor blends Class A and B aggregates to meet a Class A requirement, to ensure that at least 50% by weight, or volume if required, of the material retained on the No. 4 sieve comes from the Class A aggregate source. The Engineer will use the Department's mix design template, when electing to verify conformance, to calculate the percent of Class A aggregate retained on the No. 4 sieve by inputting the bin percentages shown from readouts in the control room at the time of production and stockpile gradations measured at the time of production. The Engineer may determine the gradations based on either washed or dry sieve analysis from samples obtained from individual aggregate cold feed bins or aggregate stockpiles. The Engineer may perform spot checks using the gradations supplied by the Contractor on the mixture design report as an input for the template; however, a failing spot check will require confirmation with a stockpile gradation determined by the Engineer.

- 2.1.2. **Intermediate Aggregate.** Aggregates not meeting the definition of coarse or fine aggregate will be defined as intermediate aggregate. Supply intermediate aggregates, when used that are free from organic impurities.

The Engineer may test the intermediate aggregate in accordance with [Tex-408-A](#) to verify the material is free from organic impurities. Supply intermediate aggregate from coarse aggregate sources, when used that meet the requirements shown in Table 1 unless otherwise approved.

Test the stockpile if 10% or more of the stockpile is retained on the No. 4 sieve, and verify that it meets the requirements in Table 1 for crushed face count ([Tex-460-A](#)) and flat and elongated particles ([Tex-280-F](#)).

- 2.1.3. **Fine Aggregate.** Fine aggregates consist of manufactured sands, screenings, and field sands. Fine aggregate stockpiles must meet the gradation requirements in Table 2. Supply fine aggregates that are free from organic impurities. The Engineer may test the fine aggregate in accordance with [Tex-408-A](#) to verify the material is free from organic impurities. No more than 15% of the total aggregate may be field sand or other uncrushed fine aggregate. Use fine aggregate, with the exception of field sand, from coarse aggregate sources that meet the requirements shown in Table 1 unless otherwise approved.

Test the stockpile if 10% or more of the stockpile is retained on the No. 4 sieve, and verify that it meets the requirements in Table 1 for crushed face count ([Tex-460-A](#)) and flat and elongated particles ([Tex-280-F](#)).

**Table 1**  
**Aggregate Quality Requirements**

Property	Test Method	Requirement
<b>Coarse Aggregate</b>		
SAC	<a href="#">Tex-499-A (AQMP)</a>	As shown on the plans
Deleterious material, %, Max	<a href="#">Tex-217-F, Part I</a>	1.5
Decantation, %, Max	<a href="#">Tex-217-F, Part II</a>	1.5
Micro-Deval abrasion, %	<a href="#">Tex-461-A</a>	Note 1
Los Angeles abrasion, %, Max	<a href="#">Tex-410-A</a>	40
Magnesium sulfate soundness, 5 cycles, %, Max	<a href="#">Tex-411-A</a>	30
Crushed face count, <sup>2</sup> %, Min	<a href="#">Tex-460-A, Part I</a>	85
Flat and elongated particles @ 5:1, %, Max	<a href="#">Tex-280-F</a>	10
<b>Fine Aggregate</b>		
Linear shrinkage, %, Max	<a href="#">Tex-107-E</a>	3
<b>Combined Aggregate<sup>3</sup></b>		
Sand equivalent, %, Min	<a href="#">Tex-203-F</a>	45

1. Not used for acceptance purposes. Optional test used by the Engineer as an indicator of the need for further investigation.
2. Only applies to crushed gravel.
3. Aggregates, without mineral filler, RAP, RAS, or additives, combined as used in the job-mix formula (JMF).

**Table 2**  
**Gradation Requirements for Fine Aggregate**

Sieve Size	% Passing by Weight or Volume
3/8"	100
#8	70-100
#200	0-30

- 2.2. **Mineral Filler.** Mineral filler consists of finely divided mineral matter such as agricultural lime, crusher fines, hydrated lime, or fly ash. Mineral filler is allowed unless otherwise shown on the plans. Use no more than 2% hydrated lime or fly ash unless otherwise shown on the plans. Use no more than 1% hydrated lime if a substitute binder is used unless otherwise shown on the plans or allowed. Test all mineral fillers except hydrated lime and fly ash in accordance with [Tex-107-E](#) to ensure specification compliance. The plans may require or disallow specific mineral fillers. Provide mineral filler, when used, that:
- is sufficiently dry, free-flowing, and free from clumps and foreign matter as determined by the Engineer;
  - does not exceed 3% linear shrinkage when tested in accordance with [Tex-107-E](#); and
  - meets the gradation requirements in Table 3.

**Table 3**  
**Gradation Requirements for Mineral Filler**

Sieve Size	% Passing by Weight or Volume
#8	100
#200	55-100

- 2.3. **Baghouse Fines.** Fines collected by the baghouse or other dust-collecting equipment may be reintroduced into the mixing drum.
- 2.4. **Asphalt Binder.** Furnish the type and grade of performance-graded (PG) asphalt specified on the plans.
- 2.5. **Tack Coat.** Furnish CSS-1H, SS-1H, or a PG binder with a minimum high-temperature grade of PG 58 for tack coat binder in accordance with Item 300, "Asphalts, Oils, and Emulsions." Specialized or preferred tack coat materials may be allowed or required when shown on the plans. Do not dilute emulsified asphalts at the terminal, in the field, or at any other location before use.

The Engineer will obtain at least one sample of the tack coat binder per project in accordance with [Tex-500-C](#), Part III, and test it to verify compliance with Item 300, "Asphalts, Oils, and Emulsions." The Engineer will obtain the sample from the asphalt distributor immediately before use.

- 2.6. **Additives.** Use the type and rate of additive specified when shown on the plans. Additives that facilitate mixing, compaction, or improve the quality of the mixture are allowed when approved. Provide the Engineer with documentation, such as the bill of lading, showing the quantity of additives used in the project unless otherwise directed.
- 2.6.1. **Lime and Liquid Antistripping Agent.** When lime or a liquid antistripping agent is used, add in accordance with Item 301, "Asphalt Antistripping Agents." Do not add lime directly into the mixing drum of any plant where lime is removed through the exhaust stream unless the plant has a baghouse or dust collection system that reintroduces the lime into the drum.
- 2.6.2. **Warm Mix Asphalt (WMA).** Warm Mix Asphalt (WMA) is defined as HMA that is produced within a target temperature discharge range of 215°F and 275°F using approved WMA additives or processes from the Department's MPL.

WMA is allowed for use on all projects and is required when shown on the plans. When WMA is required, the maximum placement or target discharge temperature for WMA will be set at a value below 275°F.

Department-approved WMA additives or processes may be used to facilitate mixing and compaction of HMA produced at target discharge temperatures above 275°F; however, such mixtures will not be defined as WMA.

- 2.7. **Recycled Materials.** Use of RAP and RAS is permitted unless otherwise shown on the plans. Do not exceed the maximum allowable percentages of RAP and RAS shown in Table 4. The allowable percentages shown in Table 4 may be decreased or increased when shown on the plans. Determine asphalt binder content and gradation of the RAP and RAS stockpiles for mixture design purposes in accordance with [Tex-236-F](#). The Engineer may verify the asphalt binder content of the stockpiles at any time during production. Perform other tests on RAP and RAS when shown on the plans. Asphalt binder from RAP and RAS is designated as recycled asphalt binder. Calculate and ensure that the ratio of the recycled asphalt binder to total binder does not exceed the percentages shown in Table 5 during mixture design and HMA production when RAP or RAS is used. Use a separate cold feed bin for each stockpile of RAP and RAS during HMA production.

Surface, intermediate, and base mixes referenced in Tables 4 and 5 are defined as follows:

- **Surface.** The final HMA lift placed at or near the top of the pavement structure;
- **Intermediate.** Mixtures placed below an HMA surface mix and less than or equal to 8.0 in. from the riding surface; and
- **Base.** Mixtures placed greater than 8.0 in. from the riding surface.

- 2.7.1. **RAP.** RAP is salvaged, milled, pulverized, broken, or crushed asphalt pavement. Crush or break RAP so that 100% of the particles pass the 2 in. sieve. Fractionated RAP is defined as 2 or more RAP stockpiles, divided into coarse and fine fractions.

Use of Contractor-owned RAP, including HMA plant waste, is permitted unless otherwise shown on the plans. Department-owned RAP stockpiles are available for the Contractor's use when the stockpile locations are shown on the plans. If Department-owned RAP is available for the Contractor's use, the Contractor may use Contractor-owned fractionated RAP and replace it with an equal quantity of Department-owned RAP. This allowance does not apply to a Contractor using unfractionated RAP. Department-owned RAP generated through required work on the Contract is available for the Contractor's use when shown on the plans. Perform any necessary tests to ensure Contractor- or Department-owned RAP is appropriate for use. The Department will not perform any tests or assume any liability for the quality of the Department-owned RAP unless otherwise shown on the plans. The Contractor will retain ownership of RAP generated on the project when shown on the plans.

The coarse RAP stockpile will contain only material retained by processing over a 3/8-in. or 1/2-in. screen unless otherwise approved. The fine RAP stockpile will contain only material passing the 3/8-in. or 1/2-in. screen unless otherwise approved. The Engineer may allow the Contractor to use an alternate to the 3/8-in.

or 1/2-in. screen to fractionate the RAP. The maximum percentages of fractionated RAP may be comprised of coarse or fine fractionated RAP or the combination of both coarse and fine fractionated RAP.

Do not use Department- or Contractor-owned RAP contaminated with dirt or other objectionable materials. Do not use Department- or Contractor-owned RAP if the decantation value exceeds 5% and the plasticity index is greater than 8. Test the stockpiled RAP for decantation in accordance with [Tex-406-A](#), Part I. Determine the plasticity index in accordance with [Tex-106-E](#) if the decantation value exceeds 5%. The decantation and plasticity index requirements do not apply to RAP samples with asphalt removed by extraction or ignition.

Do not intermingle Contractor-owned RAP stockpiles with Department-owned RAP stockpiles. Remove unused Contractor-owned RAP material from the project site upon completion of the project. Return unused Department-owned RAP to the designated stockpile location.

**Table 4**  
Maximum Allowable Amounts of RAP<sup>1</sup>

Maximum Allowable Fractionated RAP <sup>2</sup> (%)			Maximum Allowable Unfractionated RAP <sup>3</sup> (%)		
Surface	Intermediate	Base	Surface	Intermediate	Base
20.0	30.0	40.0	10.0	10.0	10.0

1. Must also meet the recycled binder to total binder ratio shown in Table 5.
2. Up to 5% RAS may be used separately or as a replacement for fractionated RAP.
3. Unfractionated RAP may not be combined with fractionated RAP or RAS.

2.7.2.

**RAS.** Use of post-manufactured RAS or post-consumer RAS (tear-offs) is permitted unless otherwise shown on the plans. Up to 5% RAS may be used separately or as a replacement for fractionated RAP in accordance with Table 4 and Table 5. RAS is defined as processed asphalt shingle material from manufacturing of asphalt roofing shingles or from re-roofing residential structures. Post-manufactured RAS is processed manufacturer's shingle scrap by-product. Post-consumer RAS is processed shingle scrap removed from residential structures. Comply with all regulatory requirements stipulated for RAS by the TCEQ. RAS may be used separately or in conjunction with RAP.

Process the RAS by ambient grinding or granulating such that 100% of the particles pass the 3/8 in. sieve when tested in accordance with [Tex-200-F](#), Part I. Perform a sieve analysis on processed RAS material before extraction (or ignition) of the asphalt binder.

Add sand meeting the requirements of Table 1 and Table 2 or fine RAP to RAS stockpiles if needed to keep the processed material workable. Any stockpile that contains RAS will be considered a RAS stockpile and be limited to no more than 5.0% of the HMA mixture in accordance with Table 4.

Certify compliance of the RAS with [DMS-11000](#), "Evaluating and Using Nonhazardous Recyclable Materials Guidelines." Treat RAS as an established nonhazardous recyclable material if it has not come into contact with any hazardous materials. Use RAS from shingle sources on the Department's MPL. Remove substantially all materials before use that are not part of the shingle, such as wood, paper, metal, plastic, and felt paper. Determine the deleterious content of RAS material for mixture design purposes in accordance with [Tex-217-F](#), Part III. Do not use RAS if deleterious materials are more than 0.5% of the stockpiled RAS unless otherwise approved. Submit a sample for approval before submitting the mixture design. The Department will perform the testing for deleterious material of RAS to determine specification compliance.

2.8.

**Substitute Binders.** Unless otherwise shown on the plans, the Contractor may use a substitute PG binder listed in Table 5 instead of the PG binder originally specified, if the substitute PG binder and mixture made with the substitute PG binder meet the following:

- the substitute binder meets the specification requirements for the substitute binder grade in accordance with Section 300.2.10., "Performance-Graded Binders;" and
- the mixture has less than 10.0 mm of rutting on the Hamburg Wheel test ([Tex-242-F](#)) after the number of passes required for the originally specified binder. Use of substitute PG binders may only be allowed at the discretion of the Engineer if the Hamburg Wheel test results are between 10.0 mm and 12.5 mm.

**Table 5**  
**Allowable Substitute PG Binders and Maximum Recycled Binder Ratios**

Originally Specified PG Binder	Allowable Substitute PG Binder	Maximum Ratio of Recycled Binder <sup>1</sup> to Total Binder (%)		
		Surface	Intermediate	Base
<b>HMA</b>				
76-22 <sup>2</sup>	70-22 or 64-22	20.0	20.0	20.0
	70-28 or 64-28	30.0	35.0	40.0
70-22 <sup>2</sup>	64-22	20.0	20.0	20.0
	64-28 or 58-28	30.0	35.0	40.0
64-22 <sup>2</sup>	58-28	30.0	35.0	40.0
76-28 <sup>2</sup>	70-28 or 64-28	20.0	20.0	20.0
	64-34	30.0	35.0	40.0
70-28 <sup>2</sup>	64-28 or 58-28	20.0	20.0	20.0
	64-34 or 58-34	30.0	35.0	40.0
64-28 <sup>2</sup>	58-28	20.0	20.0	20.0
	58-34	30.0	35.0	40.0
<b>WMA<sup>3</sup></b>				
76-22 <sup>2</sup>	70-22 or 64-22	30.0	35.0	40.0
70-22 <sup>2</sup>	64-22 or 58-28	30.0	35.0	40.0
64-22 <sup>4</sup>	58-28	30.0	35.0	40.0
76-28 <sup>2</sup>	70-28 or 64-28	30.0	35.0	40.0
70-28 <sup>2</sup>	64-28 or 58-28	30.0	35.0	40.0
64-28 <sup>4</sup>	58-28	30.0	35.0	40.0

1. Combined recycled binder from RAP and RAS.
2. Use no more than 20.0% recycled binder when using this originally specified PG binder.
3. WMA as defined in Section 340.2.6.2., "Warm Mix Asphalt (WMA)."
4. When used with WMA, this originally specified PG binder is allowed for use at the maximum recycled binder ratios shown in this table.

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### 3. EQUIPMENT

Provide required or necessary equipment in accordance with Item 320, "Equipment for Asphalt Concrete Pavement."

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### 4. CONSTRUCTION

Produce, haul, place, and compact the specified paving mixture. In addition to tests required by the specification, Contractors may perform other QC tests as deemed necessary. At any time during the project, the Engineer may perform production and placement tests as deemed necessary in accordance with Item 5, "Control of the Work." Schedule and participate in a pre-paving meeting with the Engineer on or before the first day of paving unless otherwise directed.

- 4.1. **Certification.** Personnel certified by the Department-approved hot-mix asphalt certification program must conduct all mixture designs, sampling, and testing in accordance with Table 6. Supply the Engineer with a list of certified personnel and copies of their current certificates before beginning production and when personnel changes are made. Provide a mixture design developed and signed by a Level 2 certified specialist.

**Table 6**  
**Test Methods, Test Responsibility, and Minimum Certification Levels**

Test Description	Test Method	Contractor	Engineer	Level <sup>1</sup>
<b>1. Aggregate and Recycled Material Testing</b>				
Sampling	<a href="#">Tex-221-F</a>	✓	✓	1A
Dry sieve	<a href="#">Tex-200-F, Part I</a>	✓	✓	1A
Washed sieve	<a href="#">Tex-200-F, Part II</a>	✓	✓	1A
Deleterious material	<a href="#">Tex-217-F, Parts I &amp; III</a>	✓	✓	1A
Decantation	<a href="#">Tex-217-F, Part II</a>	✓	✓	1A
Los Angeles abrasion	<a href="#">Tex-410-A</a>		✓	TxDOT
Magnesium sulfate soundness	<a href="#">Tex-411-A</a>		✓	TxDOT
Micro-Deval abrasion	<a href="#">Tex-461-A</a>		✓	2
Crushed face count	<a href="#">Tex-460-A</a>	✓	✓	2
Flat and elongated particles	<a href="#">Tex-280-F</a>	✓	✓	2
Linear shrinkage	<a href="#">Tex-107-E</a>	✓	✓	2
Sand equivalent	<a href="#">Tex-203-F</a>	✓	✓	2
Organic impurities	<a href="#">Tex-408-A</a>	✓	✓	2
<b>2. Asphalt Binder &amp; Tack Coat Sampling</b>				
Asphalt binder sampling	<a href="#">Tex-500-C, Part II</a>	✓	✓	1A/1B
Tack coat sampling	<a href="#">Tex-500-C, Part III</a>	✓	✓	1A/1B
<b>3. Mix Design &amp; Verification</b>				
Design and JMF changes	<a href="#">Tex-204-F</a>	✓	✓	2
Mixing	<a href="#">Tex-205-F</a>	✓	✓	2
Molding (TGC)	<a href="#">Tex-206-F</a>	✓	✓	1A
Molding (SGC)	<a href="#">Tex-241-F</a>	✓	✓	1A
Laboratory-molded density	<a href="#">Tex-207-F</a>	✓	✓	1A
VMA <sup>2</sup> (calculation only)	<a href="#">Tex-204-F</a>	✓	✓	2
Rice gravity	<a href="#">Tex-227-F</a>	✓	✓	1A
Ignition oven correction factors <sup>3</sup>	<a href="#">Tex-236-F</a>	✓	✓	2
Indirect tensile strength	<a href="#">Tex-226-F</a>	✓	✓	2
Hamburg Wheel test	<a href="#">Tex-242-F</a>	✓	✓	2
Boil test	<a href="#">Tex-530-C</a>	✓	✓	1A
<b>4. Production Testing</b>				
Mixture sampling	<a href="#">Tex-222-F</a>	✓	✓	1A
Molding (TGC)	<a href="#">Tex-206-F</a>		✓	1A
Molding (SGC)	<a href="#">Tex-241-F</a>		✓	1A
Laboratory-molded density	<a href="#">Tex-207-F</a>		✓	1A
VMA <sup>2</sup> (calculation only)	<a href="#">Tex-204-F</a>		✓	1A
Rice gravity	<a href="#">Tex-227-F</a>		✓	1A
Gradation & asphalt binder content <sup>3</sup>	<a href="#">Tex-236-F</a>		✓	1A
Moisture content	<a href="#">Tex-212-F</a>		✓	1A
Hamburg Wheel test	<a href="#">Tex-242-F</a>		✓	2
Boil test	<a href="#">Tex-530-C</a>		✓	1A
<b>5. Placement Testing</b>				
Trimming roadway cores	<a href="#">Tex-207-F</a>	✓	✓	1A/1B
In-place air voids	<a href="#">Tex-207-F</a>		✓	1A/1B
Establish rolling pattern	<a href="#">Tex-207-F</a>	✓		1B
Ride quality measurement	<a href="#">Tex-1001-S</a>	✓	✓	Note 4

1. Level 1A, 1B, and 2 are certification levels provided by the Hot Mix Asphalt Center certification program.
2. Voids in mineral aggregates.
3. Refer to Section 340.4.8.3., "Production Testing," for exceptions to using an ignition oven.
4. Profiler and operator are required to be certified at the Texas A&M Transportation Institute facility when Surface Test Type B is specified.

4.2.

**Reporting, Testing, and Responsibilities.** Use Department-provided templates to record and calculate all test data pertaining to the mixture design. The Engineer will use Department templates for any production and placement testing. Obtain the current version of the templates at <http://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/forms/site-manager.html> or from the Engineer.



The maximum allowable time for the Engineer to exchange test data with the Contractor is as given in Table 7 unless otherwise approved. The Engineer will immediately report to the Contractor any test result that requires suspension of production or placement or that fails to meet the specification requirements.

Subsequent mix placed after test results are available to the Contractor, which require suspension of operations, may be considered unauthorized work. Unauthorized work will be accepted or rejected at the discretion of the Engineer in accordance with Article 5.3., "Conformity with Plans, Specifications, and Special Provisions."

**Table 7**  
**Reporting Schedule**

Description	Reported By	Reported To	To Be Reported Within
<b>Production Testing</b>			
Gradation	Engineer	Contractor	1 working day of completion of the test
Asphalt binder content			
Laboratory-molded density			
VMA (calculation)			
Hamburg Wheel test			
Moisture content			
Boil test			
Binder tests			
<b>Placement Testing</b>			
In-place air voids	Engineer	Contractor	1 working day of completion of the test <sup>1</sup>

1. 2 days are allowed if cores cannot be dried to constant weight within 1 day.

#### 4.3. Mixture Design.

4.3.1. **Design Requirements.** The Contractor may design the mixture using a Texas Gyrotory Compactor (TGC) or a Superpave Gyrotory Compactor (SGC) unless otherwise shown on the plans. Use the dense-graded design procedure provided in [Tex-204-F](#). Design the mixture to meet the requirements listed in Tables 1, 2, 3, 4, 5, 8, 9, and 10.

4.3.1.1. **Target Laboratory-Molded Density When The TGC Is Used.** Design the mixture at a 96.5% target laboratory-molded density. Increase the target laboratory-molded density to 97.0% or 97.5% at the Contractor's discretion or when shown on the plans or specification.

4.3.1.2. **Design Number of Gyration (Ndesign) When The SGC Is Used.** Design the mixture at 50 gyrations (Ndesign). Use a target laboratory-molded density of 96.0% to design the mixture; however, adjustments can be made to the Ndesign value as noted in Table 9. The Ndesign level may be reduced to no less than 35 gyrations at the Contractor's discretion.

Use an approved laboratory from the Department's MPL to perform the Hamburg Wheel test in accordance with [Tex-242-F](#), and provide results with the mixture design, or provide the laboratory mixture and request that the Department perform the Hamburg Wheel test. The Engineer will be allowed 10 working days to provide the Contractor with Hamburg Wheel test results on the laboratory mixture design.

The Engineer will provide the mixture design when shown on the plans. The Contractor may submit a new mixture design at any time during the project. The Engineer will verify and approve all mixture designs (JMF1) before the Contractor can begin production.

Provide the Engineer with a mixture design report using the Department-provided template. Include the following items in the report:

- the combined aggregate gradation, source, specific gravity, and percent of each material used;
- asphalt binder content and aggregate gradation of RAP and RAS stockpiles;
- the target laboratory-molded density (or Ndesign level when using the SGC);
- results of all applicable tests;

- the mixing and molding temperatures;
- the signature of the Level 2 person or persons that performed the design;
- the date the mixture design was performed; and
- a unique identification number for the mixture design.

**Table 8**  
**Master Gradation Limits (% Passing by Weight or Volume) and VMA Requirements**

Sieve Size	A Coarse Base	B Fine Base	C Coarse Surface	D Fine Surface	F Fine Mixture
2"	100.0 <sup>1</sup>	—	—	—	—
1-1/2"	98.0–100.0	100.0 <sup>1</sup>	—	—	—
1"	78.0–94.0	98.0–100.0	100.0 <sup>1</sup>	—	—
3/4"	64.0–85.0	84.0–98.0	95.0–100.0	100.0 <sup>1</sup>	—
1/2"	50.0–70.0	—	—	98.0–100.0	100.0 <sup>1</sup>
3/8"	—	60.0–80.0	70.0–85.0	85.0–100.0	98.0–100.0
#4	30.0–50.0	40.0–60.0	43.0–63.0	50.0–70.0	70.0–90.0
#8	22.0–36.0	29.0–43.0	32.0–44.0	35.0–46.0	38.0–48.0
#30	8.0–23.0	13.0–28.0	14.0–28.0	15.0–29.0	12.0–27.0
#50	3.0–19.0	6.0–20.0	7.0–21.0	7.0–20.0	6.0–19.0
#200	2.0–7.0	2.0–7.0	2.0–7.0	2.0–7.0	2.0–7.0
<b>Design VMA, % Minimum</b>					
—	12.0	13.0	14.0	15.0	16.0
<b>Production (Plant-Produced) VMA, % Minimum</b>					
—	11.5	12.5	13.5	14.5	15.5

1. Defined as maximum sieve size. No tolerance allowed.

**Table 9**  
**Laboratory Mixture Design Properties**

Mixture Property	Test Method	Requirement
Target laboratory-molded density, % (TGC)	<a href="#">Tex-207-F</a>	96.5 <sup>1</sup>
Design gyrations (N <sub>design</sub> for SGC)	<a href="#">Tex-241-F</a>	50 <sup>2</sup>
Indirect tensile strength (dry), psi	<a href="#">Tex-226-F</a>	85–200 <sup>3</sup>
Boil test <sup>4</sup>	<a href="#">Tex-530-C</a>	—

1. Increase to 97.0% or 97.5% at the Contractor's discretion or when shown on the plans or specification.
2. Adjust within a range of 35–100 gyrations when shown on the plans or specification or when mutually agreed between the Engineer and Contractor.
3. The Engineer may allow the IDT strength to exceed 200 psi if the corresponding Hamburg Wheel rut depth is greater than 3.0 mm and less than 12.5 mm.
4. Used to establish baseline for comparison to production results. May be waived when approved.

**Table 10**  
**Hamburg Wheel Test Requirements**

High-Temperature Binder Grade	Test Method	Minimum # of Passes @ 12.5 mm <sup>1</sup> Rut Depth, Tested @ 50°C
PG 64 or lower	<a href="#">Tex-242-F</a>	10,000 <sup>2</sup>
PG 70		15,000 <sup>3</sup>
PG 76 or higher		20,000

1. When the rut depth at the required minimum number of passes is less than 3 mm, the Engineer may require the Contractor to increase the target laboratory-molded density (TGC) by 0.5% to no more than 97.5% or lower the N<sub>design</sub> level (SGC) to no less than 35 gyrations.
2. May be decreased to no less than 5,000 passes when shown on the plans.
3. May be decreased to no less than 10,000 passes when shown on the plans.

#### 4.3.2.

**Job-Mix Formula Approval.** The job-mix formula (JMF) is the combined aggregate gradation, target laboratory-molded density (or N<sub>design</sub> level), and target asphalt percentage used to establish target values for hot-mix production. JMF1 is the original laboratory mixture design used to produce the trial batch. When

WMA is used, JMF1 may be designed and submitted to the Engineer without including the WMA additive. When WMA is used, document the additive or process used and recommended rate on the JMF1 submittal. Furnish a mix design report (JMF1) with representative samples of all component materials and request approval to produce the trial batch. Provide approximately 10,000 g of the design mixture and request that the Department perform the Hamburg Wheel test if opting to have the Department perform the test. The Engineer will verify JMF1 based on plant-produced mixture from the trial batch unless otherwise determined. The Engineer may accept an existing mixture design previously used on a Department project and may waive the trial batch to verify JMF1. Provide split samples of the mixtures and blank samples used to determine the ignition oven correction factors. The Engineer will determine the aggregate and asphalt correction factors from the ignition oven used for production testing in accordance with [Tex-236-F](#).

The Engineer will use a TGC calibrated in accordance with [Tex-914-K](#) in molding production samples. Provide an SGC at the Engineer's field laboratory for use in molding production samples if the SGC is used to design the mix.

The Engineer may perform [Tex-530-C](#) and retain the tested sample for comparison purposes during production. The Engineer may waive the requirement for the boil test.

4.3.3. **JMF Adjustments.** If JMF adjustments are necessary to achieve the specified requirements, the adjusted JMF must:

- be provided to the Engineer in writing before the start of a new lot;
- be numbered in sequence to the previous JMF;
- meet the mixture requirements in Table 4 and Table 5;
- meet the master gradation limits shown in Table 8; and
- be within the operational tolerances of the current JMF listed in Table 11.

The Engineer may adjust the asphalt binder content to maintain desirable laboratory density near the optimum value while achieving other mix requirements.

Table 11  
Operational Tolerances

Description	Test Method	Allowable Difference Between Trial Batch and JMF1 Target	Allowable Difference from Current JMF Target
Individual % retained for #8 sieve and larger	<a href="#">Tex-200-F</a> or <a href="#">Tex-236-F</a>	Must be within master grading limits in Table 8	±5.0 <sup>1,2</sup>
Individual % retained for sieves smaller than #8 and larger than #200			±3.0 <sup>1,2</sup>
% passing the #200 sieve	±2.0 <sup>1,2</sup>		
Asphalt binder content, %	<a href="#">Tex-236-F</a>	±0.5	±0.3 <sup>2</sup>
Laboratory-molded density, %	<a href="#">Tex-207-F</a>	±1.0	±1.0
VMA, %, min	<a href="#">Tex-204-F</a>	Note 3	Note 3

1. When within these tolerances, mixture production gradations may fall outside the master grading limits; however, the % passing the #200 will be considered out of tolerance when outside the master grading limits.
2. Only applies to mixture produced for Lot 1 and higher.
3. Mixture is required to meet Table 8 requirements.

4.4. **Production Operations.** Perform a new trial batch when the plant or plant location is changed. Take corrective action and receive approval to proceed after any production suspension for noncompliance to the specification. Submit a new mix design and perform a new trial batch when the asphalt binder content of:

- any RAP stockpile used in the mix is more than 0.5% higher than the value shown on the mixture design report; or
- RAS stockpile used in the mix is more than 2.0% higher than the value shown on the mixture design report.

4.4.1. **Storage and Heating of Materials.** Do not heat the asphalt binder above the temperatures specified in Item 300, "Asphalts, Oils, and Emulsions," or outside the manufacturer's recommended values. Provide the Engineer with daily records of asphalt binder and hot-mix asphalt discharge temperatures (in legible and discernible increments) in accordance with Item 320, "Equipment for Asphalt Concrete Pavement," unless

otherwise directed. Do not store mixture for a period long enough to affect the quality of the mixture, nor in any case longer than 12 hr. unless otherwise approved.

- 4.4.2. **Mixing and Discharge of Materials.** Notify the Engineer of the target discharge temperature and produce the mixture within 25°F of the target. Monitor the temperature of the material in the truck before shipping to ensure that it does not exceed 350°F (or 275°F for WMA) and is not lower than 215°F. The Department will not pay for or allow placement of any mixture produced above 350°F.

Produce WMA within the target discharge temperature range of 215°F and 275°F when WMA is required. Take corrective action any time the discharge temperature of the WMA exceeds the target discharge range. The Engineer may suspend production operations if the Contractor's corrective action is not successful at controlling the production temperature within the target discharge range. Note that when WMA is produced, it may be necessary to adjust burners to ensure complete combustion such that no burner fuel residue remains in the mixture.

Control the mixing time and temperature so that substantially all moisture is removed from the mixture before discharging from the plant. The Engineer may determine the moisture content by oven-drying in accordance with [Tex-212-F](#), Part II, and verify that the mixture contains no more than 0.2% of moisture by weight. The Engineer will obtain the sample immediately after discharging the mixture into the truck, and will perform the test promptly.

- 4.5. **Hauling Operations.** Clean all truck beds before use to ensure that mixture is not contaminated. Use a release agent shown on the Department's MPL to coat the inside bed of the truck when necessary.

Use equipment for hauling as defined in Section 340.4.6.3.2., "Hauling Equipment." Use other hauling equipment only when allowed.

- 4.6. **Placement Operations.** Collect haul tickets from each load of mixture delivered to the project and provide the Department's copy to the Engineer approximately every hour, or as directed. Use a hand-held thermal camera or infrared thermometer to measure and record the internal temperature of the mixture as discharged from the truck or Material Transfer Device (MTD) before or as the mix enters the paver and an approximate station number or GPS coordinates on each ticket unless otherwise directed. Calculate the daily yield and cumulative yield for the specified lift and provide to the Engineer at the end of paving operations for each day unless otherwise directed. The Engineer may suspend production if the Contractor fails to produce and provide haul tickets and yield calculations by the end of paving operations for each day.

Prepare the surface by removing raised pavement markers and objectionable material such as moisture, dirt, sand, leaves, and other loose impediments from the surface before placing mixture. Remove vegetation from pavement edges. Place the mixture to meet the typical section requirements and produce a smooth, finished surface with a uniform appearance and texture. Offset longitudinal joints of successive courses of hot-mix by at least 6 in. Place mixture so that longitudinal joints on the surface course coincide with lane lines, or as directed. Ensure that all finished surfaces will drain properly.

Place the mixture at the rate or thickness shown on the plans. The Engineer will use the guidelines in Table 12 to determine the compacted lift thickness of each layer when multiple lifts are required. The thickness determined is based on the rate of 110 lb./sq. yd. for each inch of pavement unless otherwise shown on the plans.

**Table 12**  
**Compacted Lift Thickness and Required Core Height**

Mixture Type	Compacted Lift Thickness Guidelines		Minimum Untrimmed Core Height (in.) Eligible for Testing
	Minimum (in.)	Maximum (in.)	
A	3.00	6.00	2.00
B	2.50	5.00	1.75
C	2.00	4.00	1.50
D	1.50	3.00	1.25
F	1.25	2.50	1.25

- 4.6.1. **Weather Conditions.** Place mixture when the roadway surface temperature is at or above 60°F unless otherwise approved. Measure the roadway surface temperature with a hand-held thermal camera or infrared thermometer. The Engineer may allow mixture placement to begin before the roadway surface reaches the required temperature if conditions are such that the roadway surface will reach the required temperature within 2 hr. of beginning placement operations. Place mixtures only when weather conditions and moisture conditions of the roadway surface are suitable as determined by the Engineer. The Engineer may restrict the Contractor from paving if the ambient temperature is likely to drop below 32°F within 12 hr. of paving.
- 4.6.2. **Tack Coat.** Clean the surface before placing the tack coat. The Engineer will set the rate between 0.04 and 0.10 gal. of residual asphalt per square yard of surface area. Apply a uniform tack coat at the specified rate unless otherwise directed. Apply the tack coat in a uniform manner to avoid streaks and other irregular patterns. Apply a thin, uniform tack coat to all contact surfaces of curbs, structures, and all joints. Allow adequate time for emulsion to break completely before placing any material. Prevent splattering of tack coat when placed adjacent to curb, gutter, and structures. Roll the tack coat with a pneumatic-tire roller to remove streaks and other irregular patterns when directed.
- 4.6.3. **Lay-Down Operations.**
- 4.6.3.1. **Windrow Operations.** Operate windrow pickup equipment so that when hot-mix is placed in windrows substantially all the mixture deposited on the roadbed is picked up and loaded into the paver.
- 4.6.3.2. **Hauling Equipment.** Use belly dumps, live bottom, or end dump trucks to haul and transfer mixture; however, with exception of paving miscellaneous areas, end dump trucks are only allowed when used in conjunction with an MTD with remixing capability unless otherwise allowed.
- 4.6.3.3. **Screed Heaters.** Turn off screed heaters, to prevent overheating of the mat, if the paver stops for more than 5 min.
- 4.7. **Compaction.** Compact the pavement uniformly to contain between 3.8% and 8.5% in-place air voids.
- Furnish the type, size, and number of rollers required for compaction as approved. Use a pneumatic-tire roller to seal the surface unless excessive pickup of fines occurs. Use additional rollers as required to remove any roller marks. Use only water or an approved release agent on rollers, tamps, and other compaction equipment unless otherwise directed.
- Use the control strip method shown in [Tex-207-F](#), Part IV, on the first day of production to establish the rolling pattern that will produce the desired in-place air voids unless otherwise directed.
- Use tamps to thoroughly compact the edges of the pavement along curbs, headers, and similar structures and in locations that will not allow thorough compaction with rollers. The Engineer may require rolling with a trench roller on widened areas, in trenches, and in other limited areas.
- Complete all compaction operations before the pavement temperature drops below 160°F unless otherwise allowed. The Engineer may allow compaction with a light finish roller operated in static mode for pavement temperatures below 160°F.

Allow the compacted pavement to cool to 160°F or lower before opening to traffic unless otherwise directed. Sprinkle the finished mat with water or limewater, when directed, to expedite opening the roadway to traffic.

- 4.8. **Production Acceptance.**
- 4.8.1. **Production Lot.** Each day of production is defined as a production lot. Lots will be sequentially numbered and correspond to each new day of production. Note that lots are not subdivided into sublots for this specification.
- 4.8.2. **Production Sampling.**
- 4.8.2.1. **Mixture Sampling.** The Engineer may obtain mixture samples in accordance with [Tex-222-F](#) at any time during production.
- 4.8.2.2. **Asphalt Binder Sampling.** The Engineer may obtain or require the Contractor to obtain 1 qt. samples of the asphalt binder at any time during production from a port located immediately upstream from the mixing drum or pug mill in accordance with [Tex-500-C](#), Part II. The Engineer may test any of the asphalt binder samples to verify compliance with Item 300, "Asphalts, Oils, and Emulsions."
- 4.8.3. **Production Testing.** The Engineer will test at the frequency listed in the Department's *Guide Schedule of Sampling and Testing* and this specification. The Engineer may suspend production if production tests do not meet specifications or are not within operational tolerances listed in Table 11. Take immediate corrective action if the Engineer's laboratory-molded density on any sample is less than 95.0% or greater than 98.0%, to bring the mixture within these tolerances. The Engineer may suspend operations if the Contractor's corrective actions do not produce acceptable results. The Engineer will allow production to resume when the proposed corrective action is likely to yield acceptable results.

The Engineer may use alternate methods for determining the asphalt binder content and aggregate gradation if the aggregate mineralogy is such that [Tex-236-F](#) does not yield reliable results. Use the applicable test procedure if an alternate test method is selected.

Table 13  
Production and Placement Testing

Description	Test Method
Individual % retained for #8 sieve and larger	<a href="#">Tex-200-F</a>
Individual % retained for sieves smaller than #8 and larger than #200	or
% passing the #200 sieve	<a href="#">Tex-236-F</a>
Laboratory-molded density	<a href="#">Tex-207-F</a>
Laboratory-molded bulk specific gravity	
In-Place air voids	
VMA	<a href="#">Tex-204-F</a>
Moisture content	<a href="#">Tex-212-F</a> , Part II
Theoretical maximum specific (Rice) gravity	<a href="#">Tex-227-F</a>
Asphalt binder content	<a href="#">Tex-236-F</a>
Hamburg Wheel test	<a href="#">Tex-242-F</a>
Recycled Asphalt Shingles (RAS) <sup>1</sup>	<a href="#">Tex-217-F</a> , Part III
Asphalt binder sampling and testing	<a href="#">Tex-500-C</a>
Tack coat sampling and testing	<a href="#">Tex-500-C</a> , Part III
Boil test	<a href="#">Tex-530-C</a>

1. Testing performed by the Construction Division or designated laboratory.

- 4.8.3.1. **Voids in Mineral Aggregates (VMA).** The Engineer may determine the VMA for any production lot. Take immediate corrective action if the VMA value for any lot is less than the minimum VMA requirement for production listed in Table 8. Suspend production and shipment of the mixture if the Engineer's VMA result is more than 0.5% below the minimum VMA requirement for production listed in Table 8. In addition to suspending production, the Engineer may require removal and replacement or may allow the lot to be left in place without payment.

- 4.8.3.2. **Hamburg Wheel Test.** The Engineer may perform a Hamburg Wheel test at any time during production, including when the boil test indicates a change in quality from the materials submitted for JMF1. In addition to testing production samples, the Engineer may obtain cores and perform Hamburg Wheel tests on any areas of the roadway where rutting is observed. Suspend production until further Hamburg Wheel tests meet the specified values when the production or core samples fail the Hamburg Wheel test criteria in Table 10. Core samples, if taken, will be obtained from the center of the finished mat or other areas excluding the vehicle wheel paths. The Engineer may require up to the entire lot of any mixture failing the Hamburg Wheel test to be removed and replaced at the Contractor's expense.

If the Department's or Department-approved laboratory's Hamburg Wheel test results in a "remove and replace" condition, the Contractor may request that the Department confirm the results by re-testing the failing material. The Construction Division will perform the Hamburg Wheel tests and determine the final disposition of the material in question based on the Department's test results.

- 4.8.4. **Individual Loads of Hot-Mix.** The Engineer can reject individual truckloads of hot-mix. When a load of hot-mix is rejected for reasons other than temperature, contamination, or excessive uncoated particles, the Contractor may request that the rejected load be tested. Make this request within 4 hr. of rejection. The Engineer will sample and test the mixture. If test results are within the operational tolerances shown in Table 11, payment will be made for the load. If test results are not within operational tolerances, no payment will be made for the load.

4.9. **Placement Acceptance.**

- 4.9.1. **Placement Lot.** A placement lot is defined as the area placed during a production lot (one day's production). Placement lot numbers will correspond with production lot numbers.

- 4.9.2. **Miscellaneous Areas.** Miscellaneous areas include areas that typically involve significant handwork or discontinuous paving operations, such as temporary detours, driveways, mailbox turnouts, crossovers, gores, spot level-up areas, and other similar areas. Miscellaneous areas also include level-ups and thin overlays when the layer thickness specified on the plans is less than the minimum untrimmed core height eligible for testing shown in Table 12. The specified layer thickness is based on the rate of 110 lb./sq. yd. for each inch of pavement unless another rate is shown on the plans. Compact miscellaneous areas in accordance with Section 340.4.7., "Compaction." Miscellaneous areas are not subject to in-place air void determination except for temporary detours when shown on the plans.

- 4.9.3. **Placement Sampling.** Provide the equipment and means to obtain and trim roadway cores on site. On site is defined as in close proximity to where the cores are taken. Obtain the cores within one working day of the time the placement lot is completed unless otherwise approved. Obtain two 6-in. diameter cores side-by-side at each location selected by the Engineer for in-place air void determination unless otherwise shown on the plans. For Type D and Type F mixtures, 4-in. diameter cores are allowed. Mark the cores for identification, measure and record the untrimmed core height, and provide the information to the Engineer. The Engineer will witness the coring operation and measurement of the core thickness.

Visually inspect each core and verify that the current paving layer is bonded to the underlying layer. Take corrective action if an adequate bond does not exist between the current and underlying layer to ensure that an adequate bond will be achieved during subsequent placement operations.

Trim the cores immediately after obtaining the cores from the roadway in accordance with [Tex-207-F](#) if the core heights meet the minimum untrimmed value listed in Table 12. Trim the cores on site in the presence of the Engineer. Use a permanent marker or paint pen to record the date and lot number on each core as well as the designation as Core A or B. The Engineer may require additional information to be marked on the core and may choose to sign or initial the core. The Engineer will take custody of the cores immediately after they are trimmed and will retain custody of the cores until the Department's testing is completed. Before turning the trimmed cores over to the Engineer, the Contractor may wrap the trimmed cores or secure them in a manner that will reduce the risk of possible damage occurring during transport by the Engineer. After testing, the Engineer will return the cores to the Contractor.

The Engineer may have the cores transported back to the Department's laboratory at the HMA plant via the Contractor's haul truck or other designated vehicle. In such cases where the cores will be out of the Engineer's possession during transport, the Engineer will use Department-provided security bags and the Roadway Core Custody protocol located at <http://www.txdot.gov/business/specifications.htm> to provide a secure means and process that protects the integrity of the cores during transport.

Instead of the Contractor trimming the cores on site immediately after coring, the Engineer and the Contractor may mutually agree to have the trimming operations performed at an alternate location such as a field laboratory or other similar location. In such cases, the Engineer will take possession of the cores immediately after they are obtained from the roadway and will retain custody of the cores until testing is completed. Either the Department or Contractor representative may perform trimming of the cores. The Engineer will witness all trimming operations in cases where the Contractor representative performs the trimming operation.

Dry the core holes and tack the sides and bottom immediately after obtaining the cores. Fill the hole with the same type of mixture and properly compact the mixture. Repair core holes with other methods when approved.

4.9.4. **Placement Testing.** The Engineer may measure in-place air voids at any time during the project to verify specification compliance.

4.9.4.1. **In-Place Air Voids.** The Engineer will measure in-place air voids in accordance with [Tex-207-F](#) and [Tex-227-F](#). Cores not meeting the height requirements in Table 12 will not be tested. Before drying to a constant weight, cores may be pre-dried using a Corelok or similar vacuum device to remove excess moisture. The Engineer will use the corresponding theoretical maximum specific gravity to determine the air void content of each core. The Engineer will use the average air void content of the 2 cores to determine the in-place air voids at the selected location.

The Engineer will use the vacuum method to seal the core if required by [Tex-207-F](#). The Engineer will use the test results from the unsealed core if the sealed core yields a higher specific gravity than the unsealed core. After determining the in-place air void content, the Engineer will return the cores and provide test results to the Contractor.

Take immediate corrective action when the in-place air voids exceed the range of 3.8% and 8.5% to bring the operation within these tolerances. The Engineer may suspend operations or require removal and replacement if the in-place air voids are less than 2.7% or greater than 9.9%. The Engineer will allow paving to resume when the proposed corrective action is likely to yield between 3.8% and 8.5% in-place air voids. Areas defined in Section 340.9.2., "Miscellaneous Areas," are not subject to in-place air void determination.

4.9.5. **Irregularities.** Identify and correct irregularities including segregation, rutting, raveling, flushing, fat spots, mat slippage, irregular color, irregular texture, roller marks, tears, gouges, streaks, uncoated aggregate particles, or broken aggregate particles. The Engineer may also identify irregularities, and in such cases, the Engineer will promptly notify the Contractor. If the Engineer determines that the irregularity will adversely affect pavement performance, the Engineer may require the Contractor to remove and replace (at the Contractor's expense) areas of the pavement that contain irregularities and areas where the mixture does not bond to the existing pavement. If irregularities are detected, the Engineer may require the Contractor to immediately suspend operations or may allow the Contractor to continue operations for no more than one day while the Contractor is taking appropriate corrective action.

4.9.6. **Ride Quality.** Use Surface Test Type A to evaluate ride quality in accordance with Item 585, "Ride Quality for Pavement Surfaces," unless otherwise shown on the plans.

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## 5. MEASUREMENT

Hot mix will be measured by the ton of composite hot-mix, which includes asphalt, aggregate, and additives. Measure the weight on scales in accordance with Item 520, "Weighing and Measuring Equipment."



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**6. PAYMENT**

The work performed and materials furnished in accordance with this Item and measured as provided under Article 340.5., "Measurement," will be paid for at the unit bid price for "Dense Graded Hot-Mix Asphalt (SQ)" of the mixture type, SAC, and binder specified. These prices are full compensation for surface preparation, materials including tack coat, placement, equipment, labor, tools, and incidentals.

Trial batches will not be paid for unless they are included in pavement work approved by the Department.

Payment adjustment for ride quality, if applicable, will be determined in accordance with Item 585, "Ride Quality for Pavement Surfaces."

# Item 351

## Flexible Pavement Structure Repair



### 1. DESCRIPTION

Repair localized sections of flexible pavement structure including subgrade, base, and surfacing as shown on the plans.

### 2. MATERIALS

Furnish materials unless otherwise shown on the plans. Provide materials of the type and grade as shown on the plans and in accordance with the following.

- Item 132, "Embankment"
- Item 204, "Sprinkling"
- Item 247, "Flexible Base"
- Item 260, "Lime Treatment (Road-Mixed)"
- Item 263, "Lime Treatment (Plant-Mixed)"
- Item 275, "Cement Treatment (Road-Mixed)"
- Item 276, "Cement Treatment (Plant-Mixed)"
- Item 292, "Asphalt Treatment (Plant-Mixed)"
- Item 310, "Prime Coat"
- Item 316, "Seal Coat"
- Item 330, "Limestone Rock Asphalt Pavement"
- Item 334, "Hot-Mix Cold-Laid Asphalt Concrete Pavement"
- Item 340, "Dense Graded Hot-Mix Asphalt (Small Quantity)"

For asphalt concrete materials, Contractor testing and payment adjustment provisions will be waived unless otherwise shown on the plans.

### 3. EQUIPMENT

Furnish equipment in accordance with pertinent Items. Use of a motor grader will be permitted for asphalt concrete pavement unless otherwise shown on the plans.

### 4. WORK METHODS

Repair using one or more of the following operations as shown on the plans. For Contracts with callout work, begin physical repair within 24 hr. of notification unless otherwise shown on the plans. Cut neat vertical faces around the perimeter of the work area when removing pavement structure layers. Removed materials are the property of the Contractor unless otherwise shown on the plans. Dispose of removed material in accordance with federal, state, and local regulations. Provide a smooth line and grade conforming to the adjacent pavement.

- 4.1. **Removing Pavement Structure.** Remove adjacent soil and vegetation if necessary to prevent contamination of the repair area, and place it in a windrow. Do not damage adjacent pavement structure during repair operations. Remove flexible pavement structure layers from work area if subgrade work is required.

- 4.2. **Preparing Subgrade.** Fill holes, ruts, and depressions with approved material. Wet, reshape, and compact the subgrade thoroughly as directed.
- Remove unstable subgrade material to the depth directed and replace with an approved material where subgrade has failed.
- 4.3. **Mixing and Placing Base Material.** Place, spread, and compact material in accordance with the applicable Item to the required or directed depth. Pulverize bituminous material to a maximum dimension of 2-1/2 in. and uniformly mix with existing base to the depth shown on the plans when the material is to remain in pavement structure.
- 4.3.1. **Flexible Base.** Use existing base and add new flexible base as required in accordance with Item 247, "Flexible Base," and details shown on the plans to achieve required section.
- 4.3.2. **Lime-Stabilized Base.** Use existing base, add new flexible base, and stabilize with a minimum lime content of 3% by weight of the total mixture. Construct in accordance with Item 260, "Lime Treatment (Road-Mixed)," or Item 263, "Lime Treatment (Plant-Mixed)," and details shown on the plans to achieve required section.
- 4.3.3. **Cement-Stabilized Base.** Use existing base, add flexible base, and stabilize with a minimum cement content of 4% by weight of the total mixture. Construct in accordance with Item 275, "Cement Treatment (Road-Mixed)," or Item 276, "Cement Treatment (Plant-Mixed)," and details shown on the plans to achieve required section.
- 4.3.4. **Asphalt-Stabilized Base.** Place asphalt-stabilized base in accordance with Item 292, "Asphalt Treatment (Plant-Mixed)," or Item 340, "Dense-Graded Hot-Mix Asphalt (Small Quantity)," and details shown on the plans to achieve required section.
- 4.3.5. **Limestone Rock Asphalt.** Place in accordance with Item 330, "Limestone Rock Asphalt Pavement," and details shown on the plans to achieve required section.
- 4.4. **Curing Base.** Cure in accordance with the appropriate Item unless otherwise directed or approved. Maintain completed base sections until surfacing.
- 4.5. **Surfacing.** Apply surfacing with materials as shown on the plans to the completed base section.
- 4.5.1. **Prime Coat.** Protect the compacted, finished, and cured flexible, lime-stabilized, or cement-stabilized base mixtures with a prime coat of the type and grade shown on the plans. Apply the prime coat at the rate shown on the plans.
- 4.5.2. **Surface Treatments.** Apply surface treatment with the type and grade of asphalt and aggregate as shown on the plans in accordance with Item 316, "Seal Coat."
- 4.5.3. **Asphalt Concrete Pavement.** Apply tack coat of the type and grade and at the rate shown on the plans unless otherwise directed. Construct in accordance with Item 330, "Limestone Rock Asphalt Pavement," Item 334, "Hot-Mix Cold-Laid Asphalt Concrete Pavement," or Item 340, "Dense-Graded Hot-Mix Asphalt (Small Quantity)," to achieve required section.
- 4.6. **Finishing.** Regrade and compact disturbed topsoil. Clean roadway surface after repair operations.

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## 5. MEASUREMENT

This Item will be measured by the square yard. In areas where material is excavated, as directed, to depths greater than those specified on the plans, measurement will be made by dividing the actual depth of such area by the plan depth and then multiplying this figure by the area in square yard of work performed. Calculations for each repaired area will be rounded up to the nearest 1/10 sq. yd. At each repair location, the minimum area for payment purposes will be 1 sq. yd.

The minimum quantity for Contracts with callout work is 5 sq. yd. per callout unless otherwise shown on the plans.

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**6. PAYMENT**

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Flexible Pavement Structure Repair" of the specified depth. This price is full compensation for scarifying, removing, hauling, spreading, disposing of, and stockpiling existing pavement structure; removing objectionable or unstable material; furnishing and placing materials; maintaining completed section before surfacing; applying tack or prime coat; hauling, sprinkling, spreading, and compacting; and equipment, labor, tools, and incidentals.

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## Item 712

### Cleaning and Sealing Joints and Cracks (Asphalt Concrete)




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#### 1. DESCRIPTION

Clean and seal joints and cracks in asphalt concrete roadway surfaces.

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#### 2. MATERIALS

Furnish materials unless otherwise shown on the plans. Furnish sealant materials as shown on the plans in accordance with Item 300, "Asphalts, Oils, and Emulsions." Furnish fine aggregate in accordance with Section 340.2.1.3., "Fine Aggregate."

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#### 3. EQUIPMENT

Furnish equipment, tools, and machinery for proper execution of the work.

3.1. **Hot-Applied Sealants.** Heat in a double-jacketed heater using a heat transfer oil so no direct flame comes in contact with the shell of the vessel containing the sealing compound. Provide a heater capable of circulating and agitating the sealant during the heating process to achieve a uniform temperature rise and maintain the desired temperature. Provide gauges to monitor the temperature of the vessel contents and avoid overheating the material. Provide a heater equipped with a gear-driven asphalt pump with adequate pressure to dispense the sealant.

3.2. **Cold-Applied Sealants.** Provide equipment with adequate pressure to dispense the sealant in a continuous flow.

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#### 4. WORK METHODS

Apply material when the air or pavement temperature is within the manufacturer's recommendations or as approved. Clean and seal joints and cracks that are 1/16 in. or greater in width. Fill cracks with dry sand for cracks greater than 1/2 in. or as shown on the plans. Rout joints and cracks to the configuration shown on the plans when required. Clean joints and cracks with air blast cleaning or other acceptable methods to a depth at least twice the joint or crack width. Joints and cracks must be free of moisture before sealing. Dispose of materials removed as directed or approved. Apply sealing material with a pressure nozzle. Completely fill cracks and joints. Squeegee material to no more than 3 in. wide and 1/8 in. above the pavement surface. Prevent tracking with an application of fine aggregate as directed.

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#### 5. MEASUREMENT

This Item will be measured by the foot, gallon, pound, or lane mile. Shoulders wider than 6 ft. are considered additional lanes.

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#### 6. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Joint and Crack Sealing" of the sealant material specified and "Joint and Crack Routing and Sealing" of the sealant material specified. This price is full

compensation for routing, cleaning, and sealing joints and cracks; furnishing and placing materials; and equipment, labor, tools, and incidentals.

If measurement is by the lane mile, shoulders 6 ft. or narrower will not be paid for directly but will be subsidiary to work on the adjacent travel lane.

**BID**

Proposal of \_\_\_\_\_ (hereinafter called "Bidder"), \*a corporation organized and existing under the laws of the State of \_\_\_\_\_, \*a partnership, \*an individual doing business as \_\_\_\_\_.  
\* Bidder to strike out "corporation...", "partnership" or "individual...", whichever is not applicable.

To CITY OF LA VERNIA; hereinafter called "OWNER".

The Bidder, in compliance with the Invitation for Bids of the **WATER SYSTEM IMPROVEMENTS PROJECT – PHASE II FILTER PLANT EXPANSION, SWE PROJECT NO. 0200-027-18**, having examined the Plans and Specifications with related documents and the site of the proposed work and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies to construct the project in accordance with the Contract Documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents to which this proposal is a part, including all labor, materials, testing, bailing, shoring, removal, overhead, profit, insurance, etc. Unit price amounts are to be shown in both words and figures, and in case of discrepancy, the unit price amount shown in words will govern.

Bidder hereby agrees to commence work under this Contract on or before \_\_\_\_\_ (which will be specified in the written "NOTICE TO PROCEED") and to fully complete the project within \_\_\_\_\_ consecutive calendar days thereafter as stipulated in the Specifications. Bidder further agrees to pay as liquidated damages (as further described in the Contractor Agreement) the sum of \$100.00 for each consecutive calendar day thereafter.

In accordance with Chapter 176, Local Government Code, a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a), such vendor is required to disclose a person's "affiliations or business relations that might cause a conflict of interest." The term "affiliation" is not defined in Chapter 176, however, the general definition of the word "affiliation" would mean any association or connection. So any affiliation, including such things as friendship, membership in some group or organization, relationship by blood or marriage, or any other connection, must be disclosed on the Conflict of Interest Questionnaire, Form CIQ. Pursuant to Local Government Code 176, if this is the "apparent low Bid", then OWNER may not accept the bid until the successful low bidder has provided a completed, signed, and dated Form CIQ to OWNER. The undersigned acknowledges that failure to provide said fully-completed form will result in a non-conforming bid and will prohibit OWNER from considering this bid for acceptance.

Bidder acknowledges receipt of the following addendum:  
NO. \_\_\_\_\_ DATE \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\*Strike out corporation, partnership and/or individual whichever is not applicable.

**CITY OF LA VERNIA  
WATER SYSTEM IMPROVEMENTS PROJECT  
PHASE II FILTER PLANT EXPANSION**

**BASE BID SCHEDULE**

(This project is exempt from sales taxes. All items shall be completed in place per Plans and Specifications. Any work item not specifically called out herein is intended to be included in the other items.)

<u>ITEM</u>	<u>QTY.</u>	<u>UNIT</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
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1.	1	L.S.	Furnish and Install 2-8' Diameter x 16' Tall Covered Gravity Dual Media Fiberglass Filter Units including Media, Site Fill, Concrete Slab, and Catwalk Extension; Complete in place in accordance with the Plans and Specifications for the lump sum price of:		
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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ DOLLARS

& \_\_\_\_\_ CENTS \$ \_\_\_\_\_

2.	1	L.S.	Furnish and Install Site Yard Piping including painting from Existing Filter Unit to New Filter Units including Waste Lines; Complete in place in accordance with the Plans and Specifications for the lump sum price of:		
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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ DOLLARS

& \_\_\_\_\_ CENTS \$ \_\_\_\_\_



3. 1 L.S.

Furnish and Install Existing Control and Chemical Feed Masonry Building Modifications including New Air Conditioning Unit; Complete in place in accordance with the Plans and Specifications for the lump sum price of:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ DOLLARS

& \_\_\_\_\_ CENTS \$ \_\_\_\_\_

4. 1 L.S.

Furnish and Install All Electrical Improvements and Control Components for Existing and New Filter Transfer Pumps including New 20 H.P. VFD Motors on Existing Pumps and New 20 H.P. VFD Motors and Pumps for New Filters and Filter Pump Operation (SCADA to be completed by City); Complete in place in accordance with the Plans and Specifications for the lump sum price of:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ DOLLARS

& \_\_\_\_\_ CENTS \$ \_\_\_\_\_

5. 1 L.S.

Furnish and Install All Labor, Material and Equipment for Cleaning and Repainting the Existing Exposed Filter Front and Waste Piping, Valves and Fittings; Complete in place in accordance with the Plans and Specifications for the lump sum price of:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ DOLLARS

& \_\_\_\_\_ CENTS \$ \_\_\_\_\_

**TOTAL BASE BID  
CITY OF LA VERNIA  
WATER SYSTEM IMPROVEMENTS PROJECT  
PHASE II FILTER PLANT EXPANSION  
(Total Bid Items No. 1 - 5)**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ DOLLARS

& \_\_\_\_\_ CENTS

\$ \_\_\_\_\_

**DEDUCT BID**

(This project is **exempt** from sales taxes. All items shall be completed in place per Plans and Specifications. Any work item not specifically called out herein is intended to be included in the other items.)

<b>ITEM</b>	<b>QTY.</b>	<b>UNIT</b>	<b>DESCRIPTION</b>	<b>UNIT PRICE</b>	<b>TOTAL PRICE</b>
1A.	1	L.S.	In lieu of Constructing 2 Filters, Deduct from Base Bid Item #1 Filter #4 including Media for the lump sum price of:  _____  _____  _____ DOLLARS & _____ CENTS \$ _____		
2A.	1	L.S.	In lieu of Constructing Front and Waste Piping to and from Filter #4, Deduct from Base Bid Item #2 the Piping, Valves and Fittings for Filter #2 for the lump sum price of:  _____  _____  _____ DOLLARS & _____ CENTS \$ _____		
4A.	1	L.S.	In lieu of Constructing New Filter Transfer Pump #4, Deduct from Base Bid Item #4 Transfer Pump #4 (the Starter and Controls for Pump #4 are to remain in Bid Item #4); Complete in place in accordance with the Plans and Specifications for the lump sum price of:  _____  _____  _____ DOLLARS & _____ CENTS \$ _____		

(Unit price amounts are to be shown in both words and figures. In case of discrepancy, the unit price amount shown in words will govern).

Each unit price shall include all labor, materials, testing, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that if his bid is within the lowest three (3) bids, that this bid shall be good and may not be withdrawn for a period of thirty (30) calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, bidder will execute a formal contract, provided herein, within 10 days.

**The following documents are attached to and made a condition of the Bid:**

- **Required Bid security (Bid Bond)**
- **Contractor Information Sheet**
- **Statement of Bidder's Qualifications**
- **Conflict of Interest Questionnaire**

BY: \_\_\_\_\_

DATE: \_\_\_\_\_

BY: \_\_\_\_\_  
(Person signing typed or printed)

SEAL  
(If bid by a Corporation)

TITLE: \_\_\_\_\_

\_\_\_\_\_  
Complete Business Name

\_\_\_\_\_  
County & State of Business

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
Mailing Address (if different)

\_\_\_\_\_  
City/State/Zip

\_\_\_\_\_  
City/State/Zip (if different)

( ) \_\_\_\_\_  
Business Phone

( ) \_\_\_\_\_  
Business FAX Number (if applicable)

Illegible and/or incomplete information on this page can cause delays in processing and/or contacting successful bidder.

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**Yvonne Griffin**

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**From:** Clarence Littlefield <clarence.littlefield@swengineers.com>  
**Sent:** Wednesday, May 6, 2020 4:46 PM  
**To:** Yvonne Griffin - City of La Vernia (yvonne.griffin@lavernia-tx.gov)  
**Subject:** CR 342 Filter System Expansion

Yvonne,

I have updated the Filter Plant expansion with cost breakdowns:

1.	Filters installed with walkway and slab	\$ 220,000.00
2.	Yard piping	\$ 30,000.00
3.	Building Modifications	\$ 15,000.00
4.	Electrical with Pumps and VFDs	\$ 90,000.00
Total		\$ 355,000.00
	Engineering	\$ 45,000.00
Total		\$ 400,000.00

If money is an issue at this time, one filter could be delayed. The slab would be constructed for 2 filters and electrical panel sized for 2 VFDs, with one installed. This could reduce the cost by about \$150,000.00.

The two existing 7' filters at 192 gpm each, plus one 8' filter at 251 gpm would treat up to 636 gpm or 1,060 connections at TCEQ's 0.6 gpm per connection. The two wells combined can deliver about 700 gpm, so the 4 filters could treat 887 gpm for 1,478 connections, but a third well would be required at that time.

Your next development could thus be used to fund the 3<sup>rd</sup> well and the 4<sup>th</sup> filter.

Please contact me for further discussion or the need for more information. Construction costs are very volatile at this time, so cost estimates are best guesses, but when the virus issue subsides, be ready for everyone to be very busy.

***Clarence L. Littlefield, P.E.***

*Vice-President*



**Southwest Engineers, Inc**

p: 830-672-7546

a: 307 St. Lawrence Gonzales, TX 78629

w: [swengineers.com](http://swengineers.com)



TBPE No. F-1909



# AGENDA REQUEST FORM

Requestor:

Yvonne Griffin

Name

Administration

Department

7-11-20  
~~1-Jun-20~~

Date

**Agenda Item information:**

Date of Meeting

~~06/11/20~~ 7/3/20

**Concise statement of the matter to be addressed:**

Discussion on funding park restroom automatic fixtures

**Summary, Attachments & Supporting Documents:**

- Referred out to County Grants person, Michele Mora, concerning the CARES Act.
- Asked her concerning upgrading the park restrooms to automatic toilets, urinals, soap and sinks.
- Michele stated that she thought, 99% positive, that this would be approved.
- Michele also stated that she would help with wording on reimbursement form when it came to that point.

**REQUEST DEADLINES:**

All requests are to be submitted to City Secretary on Wednesday the week before the meeting by 4:00 p.m. Agenda is posted 72 hours before time of the meeting for which discussion of the matter is requested. Packets are delivered Monday before the Thursday Night Regular scheduled City Council Meeting.

**Office Use Only**

Received by

Date

Time



**Yvonne Griffin**

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**From:** Michele Mora <MMora@wilsoncountytexas.gov>  
**Sent:** Friday, May 29, 2020 2:52 PM  
**To:** yvonne.griffin@lavernia-texas.gov  
**Subject:** FW: Coronavirus Relief Fund - Wilson County

Hi Yvonne:

Here is the response from TDEM for the answer about exchanging the faucets and toilets. And just a little bit more that you could add, the City of La Vernia did not have this public health enhancement budgeted because we did not have a public health emergency (pandemic) in the environment when the City was planning and budgeting for this fiscal year.

Just a thought. Let me know how I can help.

Thanks,  
Michele

***Michele Zehr Mora***

Wilson County  
Grants Manager  
Ph: 830-393-7344  
Cell: 210-385-9054  
Email: [mmora@wilsoncountytexas.gov](mailto:mmora@wilsoncountytexas.gov)  
www: [www.co.wilson.tx.us](http://www.co.wilson.tx.us)

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**From:** TDEMCRF <tdemcrf@hornellp.com>  
**Sent:** Friday, May 29, 2020 1:44 PM  
**To:** Michele Mora <MMora@wilsoncountytexas.gov>  
**Cc:** Kevin.Goodlett@tdem.texas.gov  
**Subject:** re: Coronavirus Relief Fund - Wilson County

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Ms. Mora,

Thank you for your inquiry!

The CARES Act provides that payments from the Fund may only be used to cover costs that—

1. are necessary expenditures incurred due to the public health emergency with respect to the Coronavirus Disease 2019 (COVID-19);
2. were not accounted for in the budget most recently approved as of March 27, 2020 (the date of enactment of the RES Act) for the State or government; and
3. were incurred during the period that begins on March 1, 2020, and ends on December 30, 2020

If you can demonstrate that such costs were necessary then they would likely fall under public health expenses.

**From:** Michele Mora <[MMora@wilsoncountytexas.gov](mailto:MMora@wilsoncountytexas.gov)>  
**Sent:** Wednesday, May 27, 2020 11:54 AM  
**To:** CRF <[crf@tdem.texas.gov](mailto:crf@tdem.texas.gov)>  
**Subject:** Eligible Expense

Good Morning:

I have a question from a City Administrator in one of the county's cities. Would replacing the city park's faucets and toilets with the automatic, contactless faucets and toilets be a qualifying expense? The city only has one park, but it is frequented often by the public.

Your assistance in this matter is greatly appreciated.

Respectfully,  
Michele

 **Michele Zehr Mora**

Wilson County  
Grants Manager  
1420 3<sup>rd</sup> Street, Suite 108  
Floresville, TX 78114  
Ph: 830-393-7344  
Cell: 210-385-9054  
Email: [mmora@wilsoncountytexas.gov](mailto:mmora@wilsoncountytexas.gov)  
www: [www.co.wilson.tx.us](http://www.co.wilson.tx.us)

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FERGUSON ENTERPRISES, LLC  
 FERGUSON WATERWORKS #1106  
 4427 FACTORY HILL DRIVE  
 SAN ANTONIO, TX 78219-2704  
 Phone: 210-333-2410  
 Fax: 210-333-2589

Deliver To: 200218  
 From: Jason Granato  
 Comments:

19:39:23 MAY 28 2020

Page 1 of 1

FERGUSON WATERWORKS #1106

Price Quotation  
 Phone: 210-333-2410  
 Fax: 210-333-2589

Bid No: B446714  
 Bid Date: 05/28/20  
 Quoted By: JAG

Cust Phone: 830-779-4541  
 Terms: NET 10TH PROX

Customer: CITY OF LA VERNIA  
 PO BOX 225  
 LA VERNIA, TX 78121

Ship To: CITY OF LA VERNIA  
 PO BOX 225  
 LA VERNIA, TX 78121

Cust PO#:

Job Name: CITY PARK RESTROOM

Item	Description	Quantity	Net Price	UM	Total
S3250400	TOLIETS 1.6 GPF 8111 G2 *OPTPLU 1.6 CLST FV URINAL	9	396.350	EA	3567.15
S3250401	1 GPF 8186-1 G2 *OPTPLU URN FV SOAP DISPENSOR	4	396.350	EA	1585.40
K32508	TOUCHLESS ELEC CASS DISPNS SS SINKS	2	31.250	EA	62.50
S3365330BT	LF 0.5 ELEC LAV FCT COMM CP	4	411.220	EA	1644.88
<b>Net Total:</b>					<b>\$6859.93</b>
<b>Tax:</b>					<b>\$0.00</b>
<b>Freight:</b>					<b>\$0.00</b>
<b>Total:</b>					<b>\$6859.93</b>

Quoted prices are based upon receipt of the total quantity for immediate shipment (48 hours). SHIPMENTS BEYOND 48 HOURS SHALL BE AT THE PRICE IN EFFECT AT TIME OF SHIPMENT UNLESS NOTED OTHERWISE. QUOTES FOR PRODUCTS SHIPPED FOR RESALE ARE NOT FIRM UNLESS NOTED OTHERWISE.

CONTACT YOUR SALES REPRESENTATIVE IMMEDIATELY FOR ASSISTANCE WITH DBE/MBE/WBE/SMALL BUSINESS REQUIREMENTS.

Seller not responsible for delays, lack of product or increase of pricing due to causes beyond our control, and/or based upon Local, State and Federal laws governing type of products that can be sold or put into commerce. This Quote is offered contingent upon the Buyer's acceptance of Seller's terms and conditions, which are incorporated by reference and found either following this document, or on the web at <https://www.ferguson.com/content/website-info/terms-of-sale>  
 Govt Buyers: All items are open market unless noted otherwise.

LEAD LAW WARNING: It is illegal to install products that are not "lead free" in accordance with US Federal or other applicable law in potable water systems anticipated for human consumption. Products with "NP" in the description are NOT lead free and can only be installed in non-potable applications. Buyer is solely responsible for product selection.



HOW ARE WE DOING? WE WANT YOUR FEEDBACK!

Scan the QR code or use the link below to complete a survey about your bids:

<https://survey.medallia.com/?bidsorder&fc=1106&on=39844>

# SLOAN®

## OPTIMA SYSTEMS

### Battery Powered Flushometers



Model  
**8186**

► **Description**

Exposed, Battery Powered, Sensor Operated G2® Model Urinal Flushometer.

► **Flush Cycle**

- Model 8186-1.0 Low Consumption (1.0 gpf/3.8 Lpf)
- Model 8186 Water Saver (1.5 gpf/5.7 Lpf)

► **Specifications**

Quiet, Exposed, Diaphragm Type, Chrome Plated Urinal Flushometer for either left or right hand supply with the following features:

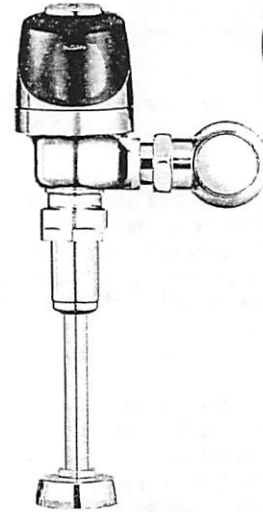
- PERMEX® Synthetic Rubber Diaphragm with Dual Filtered Fixed Bypass
- Flex Tube Diaphragm designed for improved life and reduced maintenance
- ADA Compliant OPTIMA Plus® Battery Powered Infrared Sensor for automatic "No Hands" operation
- Infrared Sensor with Multiple-focused, Lobular Sensing Fields for high and low target detection
- Latching Solenoid Operator
- Engineered Metal Cover with replaceable Lens Window
- Courtesy Flush® Override Button
- Four (4) Size AA Batteries factory installed
- "Low Battery" Flashing LED
- Infrared Sensor Range Adjustment Screw
- Initial Set-up Range Indicator Light (first 10 minutes)
- 3/4" I.P.S. Screwdriver Bak-Chek® Angle Stop
- Free Spinning, Vandal Resistant Stop Cap
- Adjustable Tailpiece
- High Back Pressure Vacuum Breaker Flush Connection with One-piece Bottom Hex Coupling Nut
- Spud Coupling and Flange for 3/4" Top Spud
- Sweat Solder Adapter with Cover Tube and Cast Set Screw Wall Flange
- High Copper, Low Zinc Brass Castings for Dezincification Resistance
- Fixed Metering Bypass and No External Volume Adjustment to Ensure Water Conservation
- Flush Accuracy Controlled by CID Technology
- Diaphragm, Stop Seat and Vacuum Breaker to be molded from PERMEX® Rubber Compound for Chloramine resistance
- 100% of the energy used in manufacturing is offset with Renewable Energy Sources – Wind Energy

Valve Body, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be in compliance with the applicable sections of ASSE 1037, ANSI/ASME A112.19.2. Installation conforms to ADA requirements.

► **Special Finishes**

- PB Polished Brass (PVD Finish)
- BN Brushed Nickel (PVD Finish)
- SF Satin Chrome

See Accessories Section and OPTIMA Accessories Section of the Sloan catalog for details on these and other OPTIMA Plus® Flushometer variations.



► **ADA Compliant**

► **Automatic**

Sloan G2 Optima Plus® Flushometers activate via multi-lobular sensor detection to provide the ultimate in sanitary protection and automatic operation. A battery powered infrared sensor sets the flushing mechanism after the user is detected and completes the flush when the user steps away.

► **Functional & Hygienic**

Touchless, sensor operation eliminates the need for user contact to help control the spread of infectious diseases. The G2 Optima Plus Flushometer is provided with an Override Button to allow a "courtesy flush" for individual user comfort.

► **Economical**

Sloan installed batteries speed installation and provide years of metered flushing to control the use of water and energy. Batteries can be changed without turning off the water.

► **Warranty**

3 year (limited)



Sloan Valve Company is buying renewable energy certificates to meet 100% of the company's purchased electricity use at its Franklin Park, Illinois facility.

This space for Architect/Engineer approval

Job Name \_\_\_\_\_ Date \_\_\_\_\_

Model Specified \_\_\_\_\_ Quantity \_\_\_\_\_

Variations Specified \_\_\_\_\_

Customer/Wholesaler \_\_\_\_\_

Contractor \_\_\_\_\_

Architect \_\_\_\_\_

# SLOAN®

## OPTIMA SYSTEMS

### Battery Powered Flushometers



Model **8110/8111**

#### ▼ Description

Exposed, Battery Powered, Sensor Operated G2® Model Water Closet Flushometer for floor mounted or wall hung top spud bowls.

#### ▼ Flush Cycle

- Model 8111 Low Consumption (1.6 gpf/6.0 Lpf)
- Model 8110 Water Saver (3.5 gpf/13.2 Lpf)

#### ▼ Specifications

Quiet, Exposed, Diaphragm Type, Chrome Plated Closet Flushometer for either left or right hand supply with the following features:

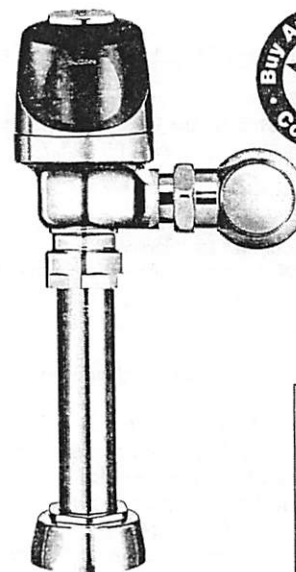
- PERMEX® Synthetic Rubber Diaphragm with Dual Filtered Fixed Bypass
- Flex Tube Diaphragm designed for improved life and reduced maintenance
- ADA Compliant OPTIMA Plus® Battery Powered Infrared Sensor for automatic "No Hands" operation
- Infrared Sensor with Multiple-focused, Lobular Sensing Fields for high and low target detection
- Latching Solenoid Operator
- Engineered Metal Cover with replaceable Lens Window
- User friendly three (3) second Flush Delay
- Courtesy Flush® Override Button
- Four (4) Size AA Batteries factory installed
- "Low Battery" Flashing LED
- Infrared Sensor Range Adjustment Screw
- Initial Set-up Range Indicator Light (first 10 minutes)
- 1" I.P.S. Screwdriver Bak-Chek® Angle Stop
- Free Spinning, Vandal Resistant Stop Cap
- Adjustable Tailpiece
- High Back Pressure Vacuum Breaker Flush Connection with One-piece Bottom Hex Coupling Nut
- Spud Coupling and Flange for 1½" Top Spud
- Sweat Solder Adapter with Cover Tube and Cast Set Screw Wall Flange
- High Copper, Low Zinc Brass Castings for Dezincification Resistance
- Fixed Metering Bypass and No External Volume Adjustment to Ensure Water Conservation
- Flush Accuracy Controlled by CID™ Technology
- Diaphragm, Stop Seat and Vacuum Breaker to be molded from PERMEX® Rubber Compound for Chloramine resistance
- 100% of the energy used in manufacturing is offset with Renewable Energy Sources – Wind Energy

Valve Body, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be in compliance with the applicable sections of ASSE 1037, ANSI/ASME A112.19.2. Installation conforms to ADA requirements.

#### ▼ Special Finishes

- PB Polished Brass (PVD Finish)
- BN Brushed Nickel (PVD Finish)
- SF Satin Chrome

See Accessories Section and OPTIMA Accessories Section of the Sloan catalog for details on these and other OPTIMA Plus® Flushometer variations.



#### ▶ ADA Compliant

#### ▶ Automatic

Sloan G2 Optima Plus® Flushometers activate via multi-lobular sensor detection to provide the ultimate in sanitary protection and automatic operation. A battery powered infrared sensor sets the flushing mechanism after the user is detected and completes the flush when the user steps away.

#### ▶ Functional & Hygienic

Touchless, sensor operation eliminates the need for user contact to help control the spread of infectious diseases. The G2 Optima Plus Flushometer is provided with an Override Button to allow a "courtesy flush" for individual user comfort.

#### ▶ Economical

Sloan installed batteries speed installation and provide years of metered flushing to control the use of water and energy. Batteries can be changed without turning off the water.

#### ▶ Warranty

3 year (limited)



Listed by I.A.P.M.O.



Sloan Valve Company is buying renewable energy certificates to meet 100% of the company's purchased electricity use at its Franklin Park, Illinois facility.

This space for Architect/Engineer approval	
Job Name _____	Date _____
Model Specified _____	Quantity _____
Variations Specified _____	
Customer/Wholesaler _____	
Contractor _____	
Architect _____	

Model

# 3110/8111

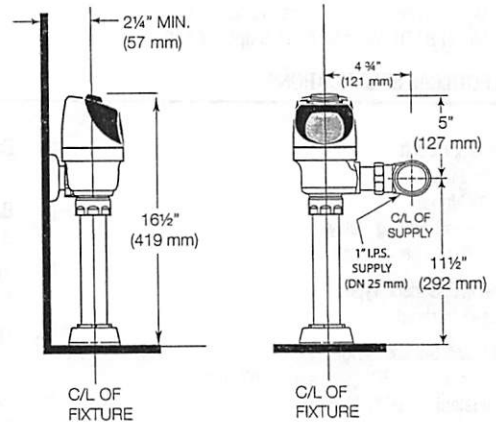


► **Description**  
 Exposed, Battery Powered, Sensor Operated G2® Model Water Closet Flushometer for floor mounted or wall hung top spud bowls.

► **Flush Cycle**  
 Model 8111 Low Consumption (1.6 gp/6.0 Lpf)  
 Model 8110 Water Saver (3.5 gp/13.2 Lpf)

### ELECTRICAL SPECIFICATIONS

- |   |   |
|---|---|
| ► <b>Control Circuit</b><br>Solid State<br>6 VDC Input<br>8 Second Arming Delay<br>3 Second Flush Delay | ► <b>Battery Type</b><br>(4) AA Alkaline                            |
| ► <b>OPTIMA Sensor Type</b><br>Active Infrared  | ► <b>Battery Life</b><br>3 Years @ 4,000 Flushes/Month              |
| ► <b>OPTIMA Sensor Range</b><br>Nominal 22" - 42" (559 mm - 1067 mm),<br>Adjustable ± 8" (203 mm)       | ► <b>Indicator Lights</b><br>Range Adjustment/Low Battery           |
|   | ► <b>Operating Pressure</b><br>15 - 100 psi (104 - 689 kPa)         |
|   | ► <b>Sentinel Flush</b><br>Once Every 24 Hours After the Last Flush |



### OPERATION

1. A continuous, invisible light beam is emitted from the OPTIMA Plus Sensor.



2. As the user enters the beam's effective range (22" to 42") the beam is reflected into the OPTIMA Plus Scanner Window and transformed into a low voltage electrical circuit. Once activated, the Output Circuit continues in a "hold" mode for as long as the user remains within the effective range of the Sensor.

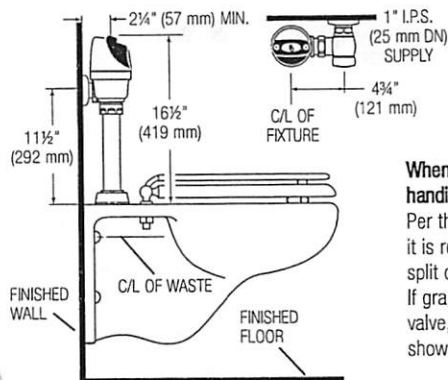


3. When the user steps away from the OPTIMA Plus Sensor, the circuit waits 3 seconds (to prevent false flushing) then initiates an electrical signal that operates the Solenoid. This initiates the flushing cycle to flush the fixture. The Circuit then automatically resets and is ready for the next user.



### VALVE ROUGH-IN

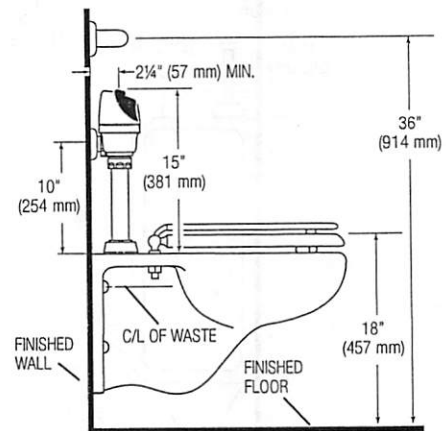
Typical Water Closet Installation  
 Model 8110/8111



**When installing the G2 Optima Plus in a handicap stall:**  
 Per the ADA Guidelines (section 604.9.4) it is recommended that the grab bars be split or shifted to the wide side of the stall. If grab bars must be present over the valve, use the Alternate ADA Installation as shown to the right.

### Alternate ADA Installation

Lower water supply rough-in to 10" (254 mm) and mount grab bar at the 36" (914 mm) maximum allowed height.



**SLOAN VALVE COMPANY • 10500 SEYMOUR AVENUE • FRANKLIN PARK, IL 60131**

Phone: 1-800-9-VALVE-9 or 1-847-671-4300 • Fax: 1-800-447-8329 or 1-847-671-4380 • www.sloanvalve.com

Model

# 8186



▼ **Description**  
Exposed, Battery Powered, Sensor Operated G2® Model Urinal Flushometer.

▼ **Flush Cycle**  
□ Model 8186-1.0 Low Consumption (1.0 gpf/3.8 Lpf)  
□ Model 8186 Water Saver (1.5 gpf/5.7 Lpf)

### ELECTRICAL SPECIFICATIONS

▼ **Control Circuit**  
Solid State  
6 VDC Input  
8 Second Arming Delay  
24 Hour Sentinel Flush

▼ **OPTIMA Sensor Type**  
Active Infrared

▼ **OPTIMA Sensor Range**  
Nominal 15" - 30" (381 mm - 762 mm),  
Adjustable ± 8" (203 mm)

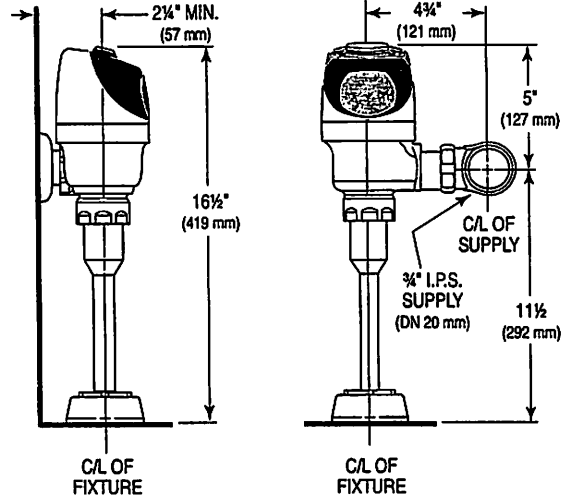
▼ **Battery Type**  
(4) AA Alkaline

▼ **Battery Life**  
3 Years @ 4,000 Flushes/Month

▼ **Indicator Lights**  
Range Adjustment/Low Battery

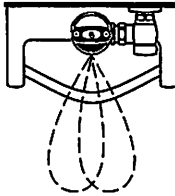
▼ **Operating Pressure**  
15 - 100 psi (104 - 689 kPa)

▼ **Sentinel Flush**  
Once Every 24 Hours After the Last  
Flush

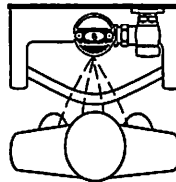


### OPERATION

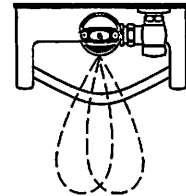
1. A continuous, invisible light beam is emitted from the OPTIMA Plus Sensor.



2. As the user enters the beam's effective range (15" to 30") the beam is reflected into the OPTIMA Plus Scanner Window and transformed into a low voltage electrical circuit. Once activated, the Output Circuit continues in a "hold" mode for as long as the user remains within the effective range of the Sensor.



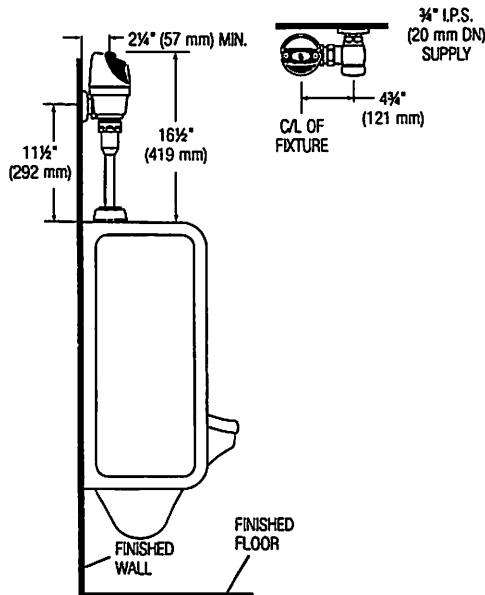
3. When the user steps away from the OPTIMA Plus Sensor, the Sensor initiates an electrical signal that operates the Solenoid. This initiates the flushing cycle to flush the fixture. The Circuit then automatically resets and is ready for the next user.



### VALVE ROUGH-IN

Typical Urinal Installation

Model 8186



Note: Lens Deflector no longer needed for targeting children or wheel chair users.

**SLOAN VALVE COMPANY • 10500 SEYMOUR AVENUE • FRANKLIN PARK, IL 60131**

Phone: 1-800-9-VALVE-9 or 1-847-671-4300 • Fax: 1-800-447-8329 or 1-847-671-4380 • [www.sloanvalve.com](http://www.sloanvalve.com)

**Electronic Touch (Less Cassette) Soap Dispenser in Faux Stainless  
TOUCHLESS ELEC CASS DISPNS SS**

**LT CODE : K32508**

**ITEM# : 4869352**

**DESCRIPTION**

- Automatically dispenses a single-shot hand wash volume of soap or sanitizer
- Choice of key-activated spring lock or push button operation
- Dispenses 60,000 hand washes
- Incorporates low-battery and low-product lights for easier maintenance
- Operates on 3 D size alkaline batteries
- Touchless system helps reduce the spread of dirt and germs
- Uses a 1.2 L recyclable refill



**OPTIONS**

**Power Type**

- Hardwired

**Body Type**

- Low Integrated Base

**Mounting**

- Deck

**Power Supply**

- Plug Adapter (PLG)
- Box Transformer (BOX)
- Hardwired Less Transformer (HLT)

**Sensor Type**

- Infrared (IR)

**Flow Rate**

- 0.5 gpm (2 Lpm) (0.5GPM)
- 0.35 gpm (1 Lpm) (0.35GPM)

**Spray Type**

- Multi-Laminar (MLM)

**Trim Plate**

- 8" (203mm) (8)

**Finish**

- Polished Chrome (CP)
- Brushed Nickel (BN)
- Brushed Stainless (SF)
- Graphite (GR)
- Polished Brass (PB)

**Control Access**

- Below Deck

**Mixer**

- Back-Check Tee (TEE)
- Below Deck Manual Mixing Valve (BDM)
- Below Deck Thermostatic Mixing Valve (BDT)

**Compliances & Certifications**

- ADA Compliant
- CEC Compliant
- NYC604.4
- UPC Low Lead Compliant
- cUPC Low Lead Compliant
- ASME A112.18.1 Compliant
- CalGreen Compliant
- Proposition 65

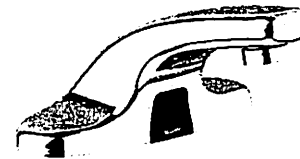


Image for a standard ETF-600 shown

**DESCRIPTION**

Optima® Hardwired-Powered Deck-Mounted Low Integrated Base Body Faucet

**FEATURES**

- Commercial Grade Faucet
- ADA Compliant
- Cast Brass Spout
- Quick Connect Fittings
- Integrated Water Shut-off
- Wireless Settings Adjustment
- On-demand or Metered activation
- Hygienic Line Flush
- Water Usage and Battery Strength Reporting
- Self-adapting Sensor

**SMART FAUCET ADDITIONAL OPTIONS**

- 24VAC plug adapter, power harness assembly or box mount power supply
- Multi-unit gang adapter kit
- 110V or 230V/6VDC plug adapter
- Special PVD finishes available Brushed Stainless, Brushed Nickel, Polished Brass and Graphite

**DOWNLOADS**

- Optima Smart Faucet Below Deck Installation Instructions
- Trim Plate Guide
- Faucet Spray Heads Repair and Maintenance Guide
- ETF-600/EBF-650 Below Deck Repair and Maintenance Guide
- Additional Downloads



- TAS
- UL Certified




**NOTES**

For product line drawings, view model-specific spec sheets.

All information contained within this document subject to change without notice.

Find a matching soap dispenser for this faucet.  
Find a compatible sink for this faucet.

**VIDEOS**

-  [Optima Faucet App](#)
-  [Sloan Optima Below Deck Faucet](#)
-  [PVD Special Finishes](#)

# MOORE *Supply Co.*



## Quotation

734 MOORE SUPPLY SAN MARCOS  
 2061 CLOVIS BARKER RD., BLDG. #3  
 SAN MARCOS TX 78666-1072  
 512-396-4111 Fax 512-396-4141

QUOTE DATE	QUOTE NUMBER
06/17/20	S158945774
QUOTED BY:	
734 MOORE SUPPLY SAN MARCOS	
2061 CLOVIS BARKER RD., BLDG.	
SAN MARCOS TX 78666-1072	
512-396-4111 Fax 512-396-4141	
PAGE NO	
1 of 1	

Printed : 17:40:43 18 JUN 2020

QUOTE TO:  
 BKS SAN MARCOS cash 734  
 2061 CLOVIS BARKER ROAD  
 BUILDING 3  
 SAN MARCOS, TX 78666

SHIP TO:  
 BKS SAN MARCOS cash 734  
 2061 CLOVIS BARKER ROAD  
 BUILDING 3  
 SAN MARCOS, TX 78666  
 210-373-9011

QUOTED FOR	CUSTOMER PURCHASE ORDER NUMBER	CUSTOMER RELEASE NUMBER	SALESPERSON	
MONICA SALINAS	CITY OF LV	BIG BEAR FEED	Leslie Evans	
QUOTED BY	SHIP VIA	TERMS	EXPIRATION DATE	CHECKED ALLOWED
Leslie Evans	CPU CUST PICK UP	CASH	08/01/20	No
QUOTE QTY	OUR PART#	DESCRIPTION	NET PRG	EXT PRG
9ea	324633	SLOAN 3250400 8111 POL CHROME G2 OPTIMA PLUS EXPOSED BATTERY POWERED 1X16-1/2 1.6GPF TOILET FLUSH VLV SENSOR ACTIVATED F/ FM OR WH TOP SPUD BOWLS ADA COMPLIANT DOM	385.938/ea	3473.44
4ea	324769	SLOAN 3250401 8186 POL CHROME G2 OPTIMA PLUS EXPOSED BATTERY POWERED 3/4X16-1/2 1.0GPF URINAL FLUSH VLV SENSOR ACTIVATED F/ 3/4 TOP SPUD URINALS ADA COMPLIANT DOM	385.938/ea	1543.75
4ea	4186290	SLOAN 3365330BT ETF600 POL CHROME OPTIMA 1 HOLE DM 4CC LAV FCT W/ .5GPM SPRAY HEAD & PLUG-IN TRANSFORMER AC SENSOR ACTIVATED VR ADA COMPLIANT LEAD FREE	396.706/ea	1586.82
ADD \$45.00 EA. FOR MIXING VALVE IF NEEDED FOR LAV FCT				
TAXES NOT INCLUDED				
Prices contained in this quote are the prices in effect at the time of quotation, and are subject to change at any time. We are not responsible for inaccurate quantity descriptions. Quantities should be checked against plans and specifications for accuracy. Special order material is non-cancellable. We are not responsible for delays not within our control.			<b>Subtotal</b>	<b>6604.01</b>
			<b>Bid Total</b>	<b>6604.01</b>



# QUOTE

Store 8437 SEGUIN  
201 W I-10  
SEGUIN, TX 78155

Phone: (830) 372-0714  
Salesperson: ADL5027  
Reviewer: ADL5027

<b>SOLD TO</b>	Name <b>MAHULA DAVID</b>		Phone 1 <b>(830) 581-9662</b>	
	Address NEED		Phone 2	
	Company Name			
	City LAVERNIA		Job Description City of LaVernia	
	State TX	Zip 78121	County GUADALUPE	

**QUOTE**

**2020-06-17 15:49**

**Prices Valid Thru: 06/24/2020**

<b>CUSTOMER PICKUP #1</b>	<b>MERCHANDISE AND SERVICE SUMMARY</b>	We reserve the right to limit the quantities of merchandise sold to customers						
REF # W05    SKU # 0000-515-664    Customer Pickup / Will Call								
<b>S.O. MERCHANDISE TO BE PICKED UP:</b>		<b>INTERLINE BRANDS</b>	<b>REF # S01</b>					
REF #	SKU	QTY	UM	DESCRIPTION	PI	TAX	PRICE EACH	EXTENSION
S0101	1002-243-817	4.00	EA	SX-0453746 / Sloan Waterless Urinal in White (Touch-F / Sloan Waterless Urinal in White (Touch-Free (WES-1000)) [HDQC2:13245591:83613981:001] [QC]	A	N	\$538.72	\$2,154.88
S0102	1003-116-356	13.00	EA	304965026 / EcoPower Touchless Urinal 1.0 GPF Toilet / EcoPower Touchless Urinal 1.0 GPF Toilet Flushometer Valve and 12 in. Vacuum Breaker Set in Polished Chrome [HDQC2:13245591:83613981:003] [QC]	A	N	\$349.69	\$4,545.97
S0103	1000-476-473	9.00	EA	35-56868 / Madera FloWise 16-1/2 in. High EverClean / Madera FloWise 16-1/2 in. High EverClean Slotted Rim Top Spud Elongated Flush Valve Toilet Bowl Only in White [HDQC2:13245591:83613981:004] [QC]	A	N	\$184.48	\$1,660.32
<b>S.O. MERCHANDISE TO BE PICKED UP:</b>		<b>INTERLINE BRANDS</b>	<b>REF # S04</b>					
REF #	SKU	QTY	UM	DESCRIPTION	PI	TAX	PRICE EACH	EXTENSION
S0404	1005-528-620	2.00	EA	35-80046 / Gen2 Automated Touchless Soap and Saniti / Gen2 Automated Touchless Soap and Sanitizer Dispenser in Brushed Stainless [HDQC2:13245591:83613981:002] [QC]	A	N	\$57.23	\$114.46
<b>SCHEDULED PICKUP DATE: Will be scheduled upon arrival of all S/O Merchandise</b>					<b>MERCHANDISE TOTAL:</b>		<b>\$8,475.63</b>	
<b>END OF CUSTOMER PICKUP - REF #W05</b>								

FOR WILL CALL  
MERCHANDISE PICK-UP  
PROCEED TO WILL CALL OR  
SERVICE DESK AREA  
(Pro Customers, Proceed To The Pro Desk)