

**COUNTY COUNCIL OF GOVERNMENTS (COG)
CACHE TECHNICAL ADVISORY COMMITTEE (CTAC)**

PROJECT INFORMATION

2018-4: 100 East, Roadway Pavement Reconstruction and Minor Widening, Mendon City

FINAL CTAC SCORING RECOMMENDATION

Congestion Score	Advance Corridor Preservation Score	Safety Score	Final CTAC Scoring Criteria Score
15 Possible	9 Possible	15 Possible	39 Possible
0	0	0	0

INITIAL APPLICATION/PLAN REVIEW FINDINGS

Technical Review for CCCOG Applications: This review has been provided by the CMPO, County staff, and consulting engineers (CRS & JUB Engineers) to determine the eligibility and outline technical considerations for each project. All reviews are done to maintain compliance with the Local Transportation Funds Program Manual and best engineering and transportation practices.

Initial application/plan review determination: Project has minor deficiencies. Correct prior to CCCOG recommendation.

Initial other findings, observations and technical considerations:

- Submitted plans lack stamp by licensed engineer
- No pavement design (required by COG policy for full depth reconstruction)

REQUEST FOR ADDITIONAL INFORMATION REVIEW

Applicants were given an opportunity to provide additional information in response to the initial review findings.

Subsequent staff review determination: Project Appears to meet all COG requirements

- Information provided by applicant adequately responded to all substantial and minor issues identified (see attached applicant response memo and plan/documentation updates at http://cachemppo.org/?page_id=1731).

Final Project Eligibility Review

	YES	NO	N/A
Regionally Significant Transportation Facility Arterial, Collector, or Logan-Cache Airport	X		
Spot Improvement (\$200,000 Limit)			X
Rural Set Aside (Outside MPO Boundaries)	X		
Included within the CMPO Transportation Plan			X
Multi-Jurisdictional Letters of Support			X
Pavement Design New Road or full depth reconstruction	X		
90% Design for Construction Projects	X		
30% Design for Right-of-Way Projects			X
Detailed Cost Estimate Bids, Opinion of Probable Cost, non-COG betterments	X		

Cache County Council of Governments (COG)

Project Oversight & Cache County Stewardship Memo

Project Name: South 100 East Street Improvement Project

Project Sponsor: Mendon City

Memo is to include list of concerns/recommendations based on checklist items. In addition, the draft memo should provide the following:

1. Professional opinion of issues related to the overall functionality of the design.
2. Professional opinion of the project independent utility (if part of a phased project)
3. Professional opinion as to design elements that fail to incorporate "best design practices".

Application and Plan Set Checklist

- Verify that plans are to 90% design for construction projects and 30% for ROW only projects (if engineering is required).

90% Comments:

1. The title sheet appears to be missing text & callouts.

The title sheet was complete as initially submitted; apparently, there was some pdf compatibility issues that presented themselves when posted on the website.

A stamped set of construction plans have been submitted.

2. How is the roadside drainage being addressed? It appears that a lot of water damage is occurring to the roadway shoulder. Do existing culverts need replaced?

The City is currently working on reconstructing drainage swales along certain sections of 100 East and installing culverts in critical locations in an effort to better manage roadside drainage.

3. What material QC/QA testing frequency and standard will be followed, as called out on sheet GN-1? Utah APWA or other?

The City has adopted Utah APWA Standards and Specifications in addition to their own standards and specifications. The QC/QA testing frequency and standard will be identified in the measurement and payment section of bid document specifications.

4. No measurement & payment documentation has been provided.

Measurement and Payment specifications will be provided in the bid documents.

Response to CTAC request for more information

5. Sheet GN-1: The HMA binder type called out to be “PG 52-34” doesn’t meet Utah APWA. For allowable binders see Utah APWA Section 32 12 08 table 1. Also, the asphalt material does not callout an aggregate gradation.

The HMA binder type has been changed to PG58-28 in accordance with Utah APWA; aggregate gradation specifications will be provided in the bid documents.

6. Pulverized Asphalt: What are the requirements? (stabilizer, tack coat, aggregate, compaction, etc.)

Proposed depth reclamation by pulverizing and mixing an existing bituminous pavement and road base in-place to produce a bituminous-aggregate base course mix will be in accordance with, and as specified in, Utah APWA Section 32-11-24; stabilizer will be specified in the bid documents.

7. Sheets P-1 to P-4:

- No vertical control is provided.
Vertical control is not needed as the project is to reshape and rebuild the crown and cross-slope of the road while maintaining the elevations of the shoulders to the extent practicable.
- Widening: Is over excavation needed for these areas? From plans it appears that widening is limited to the asphalt surface. Limits of widening is only defined by graphic.
Generally, surface widening is limited to the area of which bituminous surfacing once was. Some sections will require widening of the road base and surface; over-excavation of such areas will be itemized and specified in the bid documents.
- Clear zone: Side slopes shown on typical section don’t meet AASHTO clear zone requirements. Max allowable slope in clear zone is 4:1 slope.
The AASHTO Roadside Design Guide indicates that embankment slopes between 1V:3H and 1V:4H may be considered traversable but non-recoverable if they are smooth and free of fixed objects. Slopes steeper than 1V:3H are not considered traversable and are not considered part of the clear zone. Construction plan roadway cross sections indicate a max side slope of 1V:3H; as indicated above, the project is to reshape and rebuild the crown and cross-slope of the road while maintaining the elevations of the shoulders to the extent practicable.
- Connection to existing driveways is not shown.
Connection to existing paved driveways is indicated on the plan set by demarcation of the saw-cut line across such approaches. Connection to gravel approaches will be accomplished by blending the shoulder material into the existing approach surface.
- Slope shown on typical section indicates “2% min”, what is the maximum slope that will be allowed?
Maximum slope allowed is 4% - plans have been revised accordingly
- From typical section it appears that the proposed roadway surface is to match existing. How will excess material from pulverizing be handled or is roadway being

raised? If raised how will it connect to existing curb and gutter, side streets and driveways?

As indicated on the plans, Contractor is to re-grade and/or re-shape pulverized base course materials to re-establish a 2% min (4% max) cross slope in the roadway section on 100 east street such that the elevation of the existing roadside shoulder remains the same to the extent practicable while creating the road section crown.

- Valve boxes, manholes and utilities are not shown on the plans.
Water valve locations are shown on the plans; no manholes are located within this project. Electrical lines are overhead and west of 100 East.

8. Affected area is over 1 acre, a SWPPP is needed.

It is understood that the acre of disturbance under an existing roadway prism does not apply; therefore, a SWPPP would not be required. However, environmental protection measures will be required of the Contractor at the two creek crossings. This protection will be as specified in the bid documents.

9. How soft spots should be repaired should be included in bid package.

As indicated in the construction plans, in the event poor soils or unsuitable base materials are found, contractor is to, upon approval of the City, over excavate and fill with new structural material in accordance with Mendon City and Utah APWA standards and specifications; the more stringent shall apply.

Provide a sampling (spot check) review of the design. Check if something is being oversized or undersized (e.g. retaining walls, pipes, culverts, etc).

Sampling Review Comments:

1. See comments in other sections.

Verify that project has been designed, reviewed and stamped by licensed professional engineers.

PE Verification Comments:

1. Not stamped by a PE, however, it appears to have been designed by a PE.

Typically, 90% construction plans are not stamped, but noted as a final review set. However, the project plans have been revised to included the comments provided herein and a stamped set of construction plans have been submitted.

Verify what design standard is being followed and that it is being met. A minimum is to adhere to Cache County road standards.

Design Standard Comments:

1. Clear zone: Side slopes shown on typical section don't meet AASHTO clear zone requirements. Maximum allowable slope within the clear zone is a 4:1 slope.

The AASHTO Roadside Design Guide indicates that embankment slopes between 1V:3H and 1V:4H may be considered traversable but non-recoverable if they are smooth and free of fixed objects. Slopes steeper than 1V:3H are not considered traversable and are not considered part of the clear zone. Roadway cross sections indicate a max side slope of 1V:3H; as indicated above, the project is to reshape and rebuild the crown and cross-slope of the road while maintaining the elevations of the shoulders to the extent practicable.

2. Unable to compare to Mendon City Standards as they were not provided or made available via city website.

Project conforms to Mendon City's Standard Specifications and Drawings, Division 11, "Roadway Construction".

Review geotechnical report/pavement design.

Geotechnical/Pavement Design Comments:

1. Was a geotechnical report/ pavement design completed?

This project intends to pulverize the existing asphalt, mix with the existing base, regrade, recompact and pave 3" of asphalt over top. Since this is not a new roadway, nor is the City replacing the full depth of the roadway section, we feel a full site-specific pavement design is not required for this project and the typical sections provided in the plan set address our specific approach. However, a geotechnical engineer is available for assisting the City on an as needed basis.

Review structural design.

Structural Review Comments:

1. None

Review eligible versus non-eligible costs.

Verify that the betterments have been correctly identified.

Eligible items include:

- *All roadway construction activities that are associated with constructing the roadway pavement section (including bike lanes).*
- *Any required utility system relocations (does not include utility upgrades or improvements).*
- *Sidewalks or shared use paths (within same project limits and contribute to transportation function).*
- *Road right-of-way purchase (limited to width needed for road pavement and sidewalks or pathways).*
- *Drainage system improvements (required as a result of the project, but does not include curb and gutter).*
- *Residential or business relocation costs required by roadway improvement (requires approval of the COG Executive Committee on a case-by-case basis at time of application).*

- Roadway safety elements (e.g. guardrail, signals, cross-walks, signage and pavement marking etc).
- Site environmental cleanup or remediation costs will be considered on a case-by-case basis by the COG Executive Committee for eligibility.

Non-eligible items include (to be considered a betterment):

- Curb, gutter or decorative landscaping (beyond that required for soil stabilization with native seeding).
- Right of way cost beyond that needed to accommodate the actual road cross-section (the local jurisdiction must pay the cost difference of remnant property or full property "takes").
- Project design or COG application development costs.
- Utility system upgrades.
- Roadway lighting.

Eligibility Comments:

1. Everything within the \$200,00 appears to be eligible.
2. The project appears to be a maintenance project. What appears to be a safety improvement is the reestablishment of the roadway edge and shoulder, which typically is a maintenance activity. No other safety features were identified on the plans.

Review Opinion of Probable Cost.

Verify that betterments are broken out separately.

Verify that necessary project costs are accounted for, including but not limited to:

- Construction costs
- Utility relocations
- ROW acquisitions and easements
- Design Engineering (applicable as match)
- Construction Engineering Management services
- Permitting
- Project Sponsor cost match

OPC Comments:

1. The sponsor match is only listed in the application, and not broken out in the estimate.
2. Review of OPC:

Average (Median) Unit Prices from recent bid tabulation of similar project:

- Item 1 Mobilization: Unit price is low. Typically, should be around 5% to 7% of construction cost. **Mobilization: ~5% (3.4%)**
- Item 2 Traffic Control: Unit price is low. Typically, should be around 3% to 7% of construction cost. **Traffic Control: ~3% (1.3%)**
- Item 4 Pulverize and Regrade Existing Road to Depth. Unit price is low. A local price from 2012 was \$2.65/SY. With a 30% construction cost increase, this should be

Response to CTAC request for more information

around \$3.50 per square yard. **Pulverize and Regrade Existing Road to Depth: \$1.88 (\$1.81)**

- Item 7 Untreated Base Course: Unit price is low for a small quantity and the type of work. **Untreated Base Course Material: \$37.45 (\$29.28)**
- Soft spot repair should be included in OPC. **Soft Spot Repair will be included in the Bid Schedule**
- Construction Engineering: Typically, CE is between 5% to 8% **On an as-needed basis**
- SWPPP costs not addressed. **It is understood that the acre of disturbance under an existing roadway prism does not apply; therefore, a SWPPP would not be required. However, environmental protection measures will be required of the Contractor at the two creek crossings. This protection will be as specified and allowed for in the bid documents.**

Review right-of-way (ROW) needs and process.

Verify appropriate amount of ROW width being acquired for construction.

Review full takes and partial takes being acquired and verify what portion of it will be needed for the project. Verify that the additional amount is included as a betterment.

Verify that the ROW is consistent with the COG ROW purchase policy (see COG program manual).

Verify that relocation costs have been approved by the County Executive Committee.

ROW Comments:

1. There appear to be no ROW impacts

Recommendations:

1. A geotechnical report needs to be completed to verify that the roadway subbase is in good enough condition to warrant replacing only the asphalt. From the pictures of the surface it appears that there are some soft spots with a weaker base.
Soft spots uncovered during the pavement / base pulverizing activity will be addressed on a case-by-case basis as indicated in the plan set. The bid schedule for the work will provide a bid item for excavating, backfill and stabilization.
2. Specifications need to be provided.
Technical specifications will be provided in the bid documents.

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Project: 2018-4 Mendon 100 East
Roadway pavement reconstruct & minor widening

Project Eligibility Review

	YES	NO	N/A
Regionally Significant Transportation Facility Arterial, Collector, or Logan-Cache Airport	X		
Spot Improvement (\$200,000 Limit)			X
Rural Set Aside (Outside MPO Boundaries)	X		
Included within the CMPO Transportation Plan			X
Multi-Jurisdictional Letters of Support			X
Pavement Design New Road or full depth reconstruction		X	
90% Design for Construction Projects	X		
30% Design for Right-of-Way Projects			X
Detailed Cost Estimate Bids, Opinion of Probable Cost, non-COG betterments	X		

Project has minor deficiencies. Correct prior to CCCOG recommendation.

Additional Findings and Technical Considerations:

- 1) No pavement design (required by COG policy for full depth reconstruction).
- 2) Submitted plans have not been stamped by a licensed engineer
- 3)
- 4)
- 5)
- 6)

Detailed reviews provided by consulting engineer attached.

Cache County Council of Governments (COG)

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3. What material QC/QA testing frequency and standard will be followed, as called out on sheet GN-1? Utah APWA or other?
4. No measurement & payment documentation has been provided.
5. Sheet GN-1: The HMA binder type called out to be "PG 52-34" doesn't meet Utah APWA. For allowable binders see Utah APWA Section 32 12 08 table 1. Also, the asphalt material does not callout an aggregate gradation.
6. Pulverized Asphalt: What are the requirements? (stabilizer, tack coat, aggregate, compaction, etc)
7. Sheets P-1 to P-4:
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ROW Comments:

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Recommendations:

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2. Specifications need to be provided.