LOGAN CITY UNITED IN SERVICE
PUBLIC WORKS DEPARTMENT
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COLD WEATHER PAVING PLAN

RE: Cold Weather Paving Plan

Asphalt paving shall conform to Logan City Engineering Standards. The City's current Engineering Standards for paving are an amended version of the 2007 APWA Manual of Standard Specifications which can be found on the Logan City Engineering webpage.

Section 32 12 16.1.5 titled Weather, states,

"A. Do not pave until air temperature is 45 deg F. and rising.

B. Cease paving if air temperature falls below 50 deg F.

C. Do not pave if surface is wet or weather is unsuitable.

D. Do not pave if wind or ground cools mix material before compaction."

Later editions of the APWA Standard (which have not been adopted by Logan) have updated this section to allow for the contractor to propose a cold weather paving program. 2017 APWA Manual of Standard Specifications identifies the following requirements,

"1.6 WEATHER

A. Temperature:

1. April 15 to October 15: Place pavement when air temperature in the shade and the roadway surface temperature are above 50 deg F. The ENGINEER determines may provide written approval if it is acceptable to place outside of this temperature limit.

2. Before April 15 and After October 15: Provide a Cold Weather Paving Plan. ENGINEER must accept the plan before proceeding. Include the following details.

a. Haul details.

b. Placement details.

c. Compaction aids used in production.

d. Coordination procedure for acceptance testing.

B. Moisture: Do not place on frozen base, during adverse climatic conditions such as precipitation, or when roadway surface is wet or icy."

While the current City standard does not accommodate for a cold weather paving condition, much like the 2017 APWA standard identifies, Cold Weather paving has been allowed at times in the City for a

number of years. This document will serve as the Standard for cold weather paving for the two projects identified above.

APPROVED COLD WEATHER PAVING STANDARDS FOR LOGAN CITY RIGHTS OF WAY:

1. **City Requirements:**

   a. Unless specified below, all current Logan City construction standards shall apply.

   b. All standard subgrade/subbase compaction and proof rolling is completed per current City specifications.

   c. Cold weather paving shall not start without a City Inspector on site confirming that all conditions of the Cold Weather Paving Plan has been and is being followed (especially in regards to the ambient temperature) and provides in writing (email acceptable) to the Contractor an approval to commence.

   d. Specific standards for pavements placed outside of the City right of way (driveways, parking lots, etc) shall follow the Cold Weather paving standards as identified herein.

   e. **After October 15th and before April 15th**, when the ambient temperature is 45 F. degrees and rising and expected to reach and remain above 50 degrees F. (as determined by the City Inspector) for the duration of the daily paving activities, the City Engineer or designee may approve paving activities to proceed as normal without any special requirements.

   f. **After October 15th and before April 15th** when the following conditions are met (as determined by the City Inspector), cold weather paving may be completed under the conditions identified in items 2 through 4 below as agreed to in writing by the Contractor.

      - when the ambient temperature is 35 degrees F. and rising,
      - ambient temperature is expected to reach and remain above 40 degrees F.,
      - the roadbase is not frozen
      - and the roadbase temperature is at least 32 degrees F. as determined by the City Inspector.
      - The climatic conditions are not adverse, such as precipitation or when roadway surface is wet or icy.

   g. When asphalt placement is less than 200 tons, upon recommendation by the City's project inspector the City Engineer or designee may elect to waive a portion of the requirements in items 2 through 4 below except for temperature standards.

2. **Haul Details:**

   a. The Asphalt Plant shall be located no farther than 30 miles from the Jobsite.

   b. Minimum Asphalt Temperature in the haul truck at the jobsite (as measured by the City inspector just prior to loading into the paving machine hopper):

      1. 280 degrees F for asphalt lifts of 2 inches to 3 inches;

      2. 265 degrees F for asphalt lifts greater than 3 inches.

c. Maximum Asphalt Temperature – No greater than the lesser of the following maximum temperatures: mix design temperature range, temperature allowed by any additives used, OR 425 degrees F.

d. Trucks not meeting temperature requirements shall be rejected

3. **Placement Details:**

a. Placement shall conclude once the ambient temperature falls below 35 degrees F. as determined by the City Inspector.

b. Ambient temperatures shall be determined by the City Inspector based on real time data from the closest station on the USU Environmental Observatory Website at https://caas.usu.edu/weather/. The City Inspector may elect to use an alternate temperature measurement method if the temperature at the USU site does not appear to accurately reflect current conditions at the jobsite.

c. Asphalt shall be placed by means of haul trucks dumping directly into a paving machine hopper which shall be performed in continuous succession. Truck delays from the time one truck empties to the time the next truck is onsite shall be no greater than 7 minutes. In a contiguous paving area, the Contractor shall be allowed a maximum of 2 delays over 7 minutes (but less than 15 minutes). Any single delay over 15 minutes or a 3rd delay over 7 minutes shall require paving to be concluded for the day. Prior to restarting the paving process, the contractor shall provide additional information to the City Engineer demonstrating their ability to meet this standard.

4. **Compaction aids used in production**

a. A certified materials testing company representative paid for by the contractor shall be present onsite at all times during asphalt paving operations.

b. A rolling pattern shall be established with the first few trucks of asphalt to achieve the highest densities possible. The rolling pattern shall be developed by the materials testing technician and the roller operators using a nuclear density gauge device and the best available theoretical or actual maximum density of the mix design.

c. Compaction acceptance shall be per APWA 2017 method 2 – Non-Destructive test density.

1. A copy of a recent rice test performed by a certified lab for the mix design shall be provided to the City Inspector prior to the start of paving. The rice test shall be no older the 14 days unless otherwise approved by the City Engineer.

2. Nuclear density compaction testing shall also serve to determine whether asphalt activities will be allowed to continue in a given day as defined below.

d. Final rolling and compaction to the minimum degree specified shall be completed before the mat temperature drops below one hundred and eighty (180) degrees F, when measured one-half (½) inch below the surface or mat.

f. The Contractor shall provide a minimum of three asphalt compaction rollers which shall be 7' wide steel drum rollers (one may be kept in reserve in the event a break down is experienced). Failure to provide this prior to paving operations starting shall be reason to not allow paving operations to commence.

g. All rollers shall be in good condition, and the reversing mechanism so maintained that the roller is capable of changing directions smoothly. The roller shall be kept in continuous motion while on the hot mat in such a manner that all parts of the pavement receive equal compression. Reversing should not be done until the roller has completely stopped.

h. Rollers shall be operated by competent and experienced personnel. The number and weight of the rollers shall be sufficient to compact the asphalt concrete to the minimum degree specified while the mix is still in a workable condition and as otherwise specified herein.

i. Unless otherwise approved by the Engineer, rollers shall not be operated at a speed exceeding three (3) m.p.h. during breakdown or intermediate rolling. Roller speeds during finish rolling shall be maintained at a safe level which provides the specified surface and compaction.

j. If any single nuclear density compliance test is less than 92% relative density once the mat has cooled below 180 degrees, two additional tests shall be taken each 30 feet away along the same paving lane. If the average of the three tests are lower than 92%, this shall result in the conclusion of asphalt paving for the day and paving shall not resume until a remedy is identified by the contractor and agreed to by the City Engineer.

k. If asphalt activities are concluded due to a low nuclear density compliance testing results, the remaining asphalt that has been placed shall be compacted and tested by means of nuclear density testing. All areas of contiguous failing tests shall be sawcut and removed prior to constructing additional asphalt improvements.

l. Projects that are shut down twice for asphalt truck delays and / or insufficient compaction results shall not be allowed to continue cold weather paving operations and will be required to restart paving in the spring when warm weather conditions are present.

By signing below, the Asphalt Contractor, Project Owner, and Logan City agree to the conditions stated above as the Cold Weather Paving Plan.

_____

Contractor's Representative Date

_____

Owner's Representative Date

_____

City Engineer Date

Revision: 10/25/2022