STAFF REPORT

DATE: July 6, 2016

TO: Mayor Pindell, Town of Bennett Board of Trustees & Town Administrator

FROM: Daymon K. Johnson, Public Works Director

SUBJECT: **QUESTIONS REGARDING THE ROADS PROJECT**

Background:

The Town of Bennett board meetings are held on the second and fourth Tuesday's of every month, and during the last board meeting (6/28), questions were posed by several Bennett residents. One resident provided a list of questions, and it is attached in it's original form for your review as well.

This staff report will thoroughly address those questions, in an effort to provide you all with clarity as to what the actualities of our roads project is.

Questions & Answers:

- ***Question:*** "Roadway improvements are taking place on the Kiowa Bennett road around the Antelope Hills Subdivision. What activities are taking place that makes the Town of Bennett responsible for roadway improvements on an Arapahoe County maintained road?"

  Answer: The Town of Bennett executed a flagpole annexation of Kiowa Bennett Road in a segment that stretches from the I-70 interchange to the Southernmost edge of Antelope Hills (Co. Rd 14 / Mississippi Ave.) on June 22, 1999.

  Therefore, Kiowa Bennet Road, along that stretch, is indeed a Town of Bennett road.

- ***Question:*** "Flyash is being mixed into the subgrade but there has been no noticed quality control or city inspectors out testing and measuring the depth of the flyash penetration. Are the tickets for the flyash being collected on site? Are we getting the appropriate proportionate amount of soil stabilization mixed into the soil to the appropriate depth?"

  Answer: The Town is not using flyash, we are using cement mixture, as specified in Kumar & Associates Geotechnical Engineering Study and Pavement

Thickness Design Report, completed by Josh Barker, P.E. with Kumar & Associates on 3/18/16.

The specification utilized in the street design process, was created in accordance with the "Stabilized Subgrade, Part 1 - Chemically Stabilized Subgrade" of the Metropolitan Government Pavement Engineers Council (MGPEC) Pavement Design Standards.

The mix we receive as a part of this stabilization is checked and approved prior to Asphalt Specialties, Inc. (ASI) receiving it from their supplier, and then is QC checked again on site by Kumar & Associates prior to putting it in ground.

We have had QC on site for the duration of the CTS portion of this project in Centennial, and all reports the Town has received to date, are suggesting that proper depths & mix is being achieved.

- ***Question:*** "Traffic control in the subdivision did not have appropriate signage up several times for the flaggers. Has a method of handling traffic been approved by the Town of Bennett? Is this method of handling traffic done by a certified Traffic Control Supervisor? Are the flaggers certified?"

  Answer: Molly McGinnis is the representative for ASI who completed the original traffic control plan, and who is ultimately responsible for enforcing that plan. She is a certified TCS. In speaking with her, all of her flaggers have been or are already certified.

  Some flaggers to our project are new, but, that was because ASI made an effort to hire locals in need of employment. That said, all ARE certified and knowledgeable enough to handle the job of being a flagger for this project.

  Additionally, ASI has taken extra care to advise our residents of all things traffic related, providing additional notices, and routing plans. The most recent versions of those are attached for your review.

  The Town's streets Contractor provides the Town regular weekly traffic control plans and updates, with followup communications. The traffic control is being developed and managed by a certified traffic control supervisor, who provides direction, training, support and management of all project flaggers.

  Traffic control and safety are of paramount interest to the Town and the paving Contractor, and both topics are the first items of conversation at the weekly project progress meetings held between the Town team and Contractor team. The meetings are always attended by the Contractor's traffic control supervisor.

  I would add that the Town is interested in any of these kind of reports, and will act diligently, directly and clearly upon any information discovered or provided that the public safety is being compromised in any way by inadequate or unacceptable traffic control for this project.

- ***Question:*** "Profile presented at various community meetings showed a 5" pavement depth. 3" base pavement lift and 2" top pavement lift. Measuring various profiles where the bottom lift has been paved, the curb line depth varies greatly, from as little as ¾" of an inch in some areas. Is the city getting the full 5" depth that is being paid for? Are the pavement densities being taken often enough to ensure the mix is meeting compaction?"

  Answer: This question is relative to Centennial. The 5" depth of road was never intended for the whole community, only the main thoroughfare (collector street) of Centennial Drive through McKinley, as this is the most heavily traveled road of the subdivision. The remainder of the community streets (feeder streets) are slated to be completed at 4" depth only.

  The measurements mentioned in this of the curb line depth are problematic. The biggest reason is, we're not using the curb line as the basis for our depth measurement on this project. We are using our GPS road heights and profiles to measure depths.

  The curbs in Centennial, because of their dramatic inconsistencies in height, are not a reliable source of dimensioning for the purposes of determining existing subgrade depths or levels. The Centennial curb & gutter is approximately 35-40 years old, and has endured some settling, heaving and displacement, such that the curb lines are no longer straight.

  The Town does not want (and would not allow) the Contractor to exactly follow the curb line for establishing the asphalt pavement grades. The streets need to have a smoother profile than the existing 35-year-old curb lip.

  The Contractor is using a "best-fit" approach along the curb lines to match as much curb as possible without "bumping" or "dropping" the asphalt surface to meet every curb drop or rise. That would not be desirable. The curb face is 6-inches tall, and so is tall enough to accommodate some tolerance or travel between the curb rise & fall and the more straight new asphalt pavement.

  As for densities, based on reports the Town has received from Kumar & Associates (who is onsite as a consulting engineer for the entirety of our project) we have no failed density tests at this point, and frankly, haven't been close to failing, to date.

  The lift thicknesses are checked by the Kumar & Associates. The Town also conducts spot-checks of the pavement with asphalt cores. The Town's geotechnical engineering consultant is continuously checking compactions and densities throughout all preparation and paving operations, and advises the Contractor of below-specification areas that require additional attention and effort.

  This is a real-time interaction between the Town's testing firm and the paving Contractor.

- ***Question:*** "No one is on site taking tickets for the mix. Is the city getting the mix that was specified in the contract?"

  Answer: This is not true. As stated above, the Town has had representatives (Kumar & Associates & DCS Consulting) on site for the duration of this project. As does ASI.

  The Contractor has provided mix designs for the actual asphalt batch plant, materials and mixes being supplied to this project. The Town's geotechnical engineering firm has reviewed and approved the mix designs, and pulls samples of the actual mix on-site for lab testing and evaluation.

  The Town also receives Contractor plant certifications that the asphalt mixes being supplied are in conformance with the originally reviewed and approved mix designs.

- ***Question:*** "There's painted numbers on the street that are density numbers, that aren't the specified 92%. I've seen numbers in the upper 80's"

  Answer: This is true that some numbers have been painted on the street that are lower than the specified 92% compaction. That said, they're simply day 1 check numbers that allow ASI know where they need to direct compactive efforts and activities to get to our specified Day 3 hardness ratings.

  Further, these areas are not only tested by ASI, but also Kumar & Associates to ensure that compliance to street design specifications are met. As stated above, we have no failed compaction tests to this point.

- ***Question:*** "I've seen a 3' wide by 13' long and ¼" – ½" deep, dip in the grading that is on site. Also, I was able to pick the asphalt out with just my fingernail"

  Answer: John Greene (ASI Superintendent) and I have both been through the site and could not find any areas where this condition was noticeably present. There are some grade changes where we will be completing the new concrete cross pans, however, they're supposed to be depressed to allow for those new pans to sit at the correct elevations.

  Additionally, any removal of applied asphalt paving by town residents is not permitted. I suppose, directly after installation when the asphalt mix is still warm and unsettled, this would be possible.

  However, after curing has taken place this would be unlikely, as we're using Grade S and SX asphalt mixes per the design report by Kumar & Associates, dated 3/18/16, and those pavements must conform to CDOT Pavement Design Manual specifications, and meet PG58-28 binder requirements.

  All that to say, the product being laid down is in accordance with the required specifications and designs. And, is a very high quality asphalt paving.

- ***Question:*** "Can we confirm that everything is being tested?"

  Answer: Yes, every piece of the project completed or in progress is regularly tested and approved. Reports are received regularly from both Kumar & Associates, and ASI.

Conclusion:

Town staff has been extremely prudent and thorough in the planning and execution of this project. The work we see now, only started after countless hours of Geotechnical examination, testing, measurements and Engineering preparation had occurred.

We've worked diligently behind the scenes making sure that we provide the absolute best product that is available to the residents of Bennett. ASI, Kumar & Associates, DCS Consulting Engineers and Town Staff have been hard at work providing solutions to critical subgrade issues, of which Bennett had myriad problems to solve.

In my experience - basing my opinions on what I've seen after 17+ years in the construction industry managing high profile and high cost projects - the Town is receiving the absolute best product that is available today, and has the professionals in place - from consulting engineers to contractors - to ensure that this project is completed correctly, punctually and with a high level of quality.

Town residents should be excited by what they're seeing. This work is long overdue, and they're receiving a level of product that, in many ways, is better than what most places might see.

Questions from Town of Bennett Resident

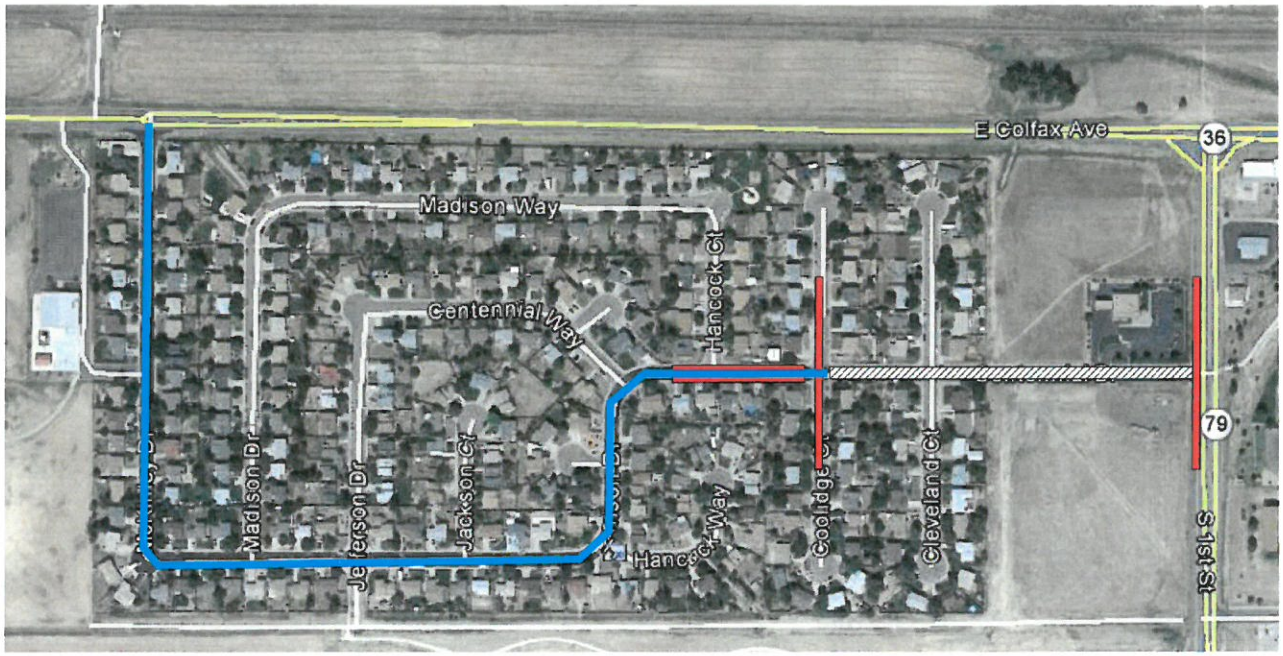
All questions are based upon observations made in the Centennial Subdivision except question 1.

1. Roadway improvements are taking place on the Kiowa Bennet road around the Antelope Hills Subdivision. What activities are taking place that makes the town of Bennett responsible for roadway improvements on an Arapahoe County maintained road?
2. Flyash is being mixed into the subgrade but there has been no noticed quality control or city inspectors out testing and measuring depth of flyash penetration. Are the tickets for the flyash being collected on site? Are we getting the appropriate proportionate amount of soil stabilization mixed into the soil to the appropriate depth?
3. Traffic control in the subdivision did not have appropriate signage up several times for the flaggers. Has a method of handling traffic been approved by the town of Bennett? Is the method of handling traffic done by a certified traffic control supervisor? Are the flaggers certified?
4. Profile presented at various community meeting showed a 5" pavement depth. 3" base pavement lift, 2" top pavement lift. Measuring various profiles where the bottom lift has been paved, the curb line depth varies greatly, from as little as ¾ of an inch in some areas. Is the City getting the full 5" depth that is being paid for? Are the pavement densities being taken often enough to ensure the mix is meeting compaction?
5. No one on site is taking the tickets for the mix. Is the City getting the mix that was specified in the Contract?

Most recent Traffic Control Plans & Outlines

Road Work in Centennial

6/27/16 - 7/1/16



= Extra Parking

= Work Area

= Detour Route

Please use allowed parking areas and Detour Route during construction

Owner: Town of Bennett
Location: Various Locations
Project Name: Bennett
Date: 5/25/16
Asphalt Specialties Company, Inc
By: Molly J. McGinnis - ATSSA TCS #30132
Asphalt Specialties Company, Inc
303-289-8555

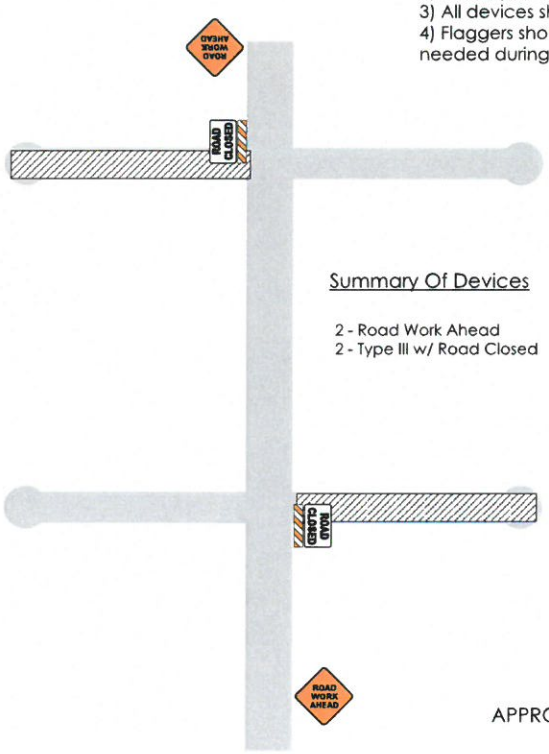
MHT #1

Road Closure

Typical Application

N

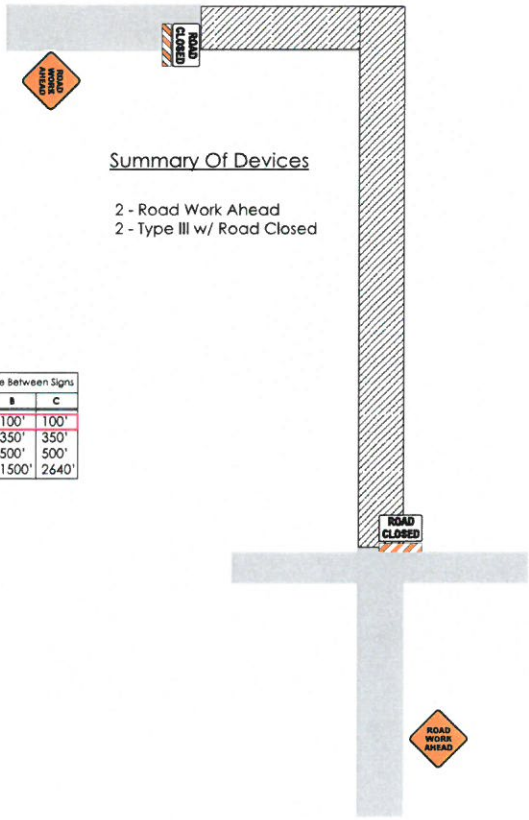
NOTES:
1) This traffic control plan is not to scale.
2) It is subject to field adjustments.
3) All devices shall conform to MUTCD standards.
4) Flaggers should assist traffic and work crews as needed during daily operations.



Summary Of Devices

2 - Road Work Ahead
2 - Type III w/ Road Closed

Road Type	Distance Between Signs		
	A	B	C
URBAN (low speed)	100'	100'	100'
URBAN (high speed)	350'	350'	350'
RURAL	500'	500'	500'
EXPRESSWAY	1000'	1500'	2640'



Summary Of Devices

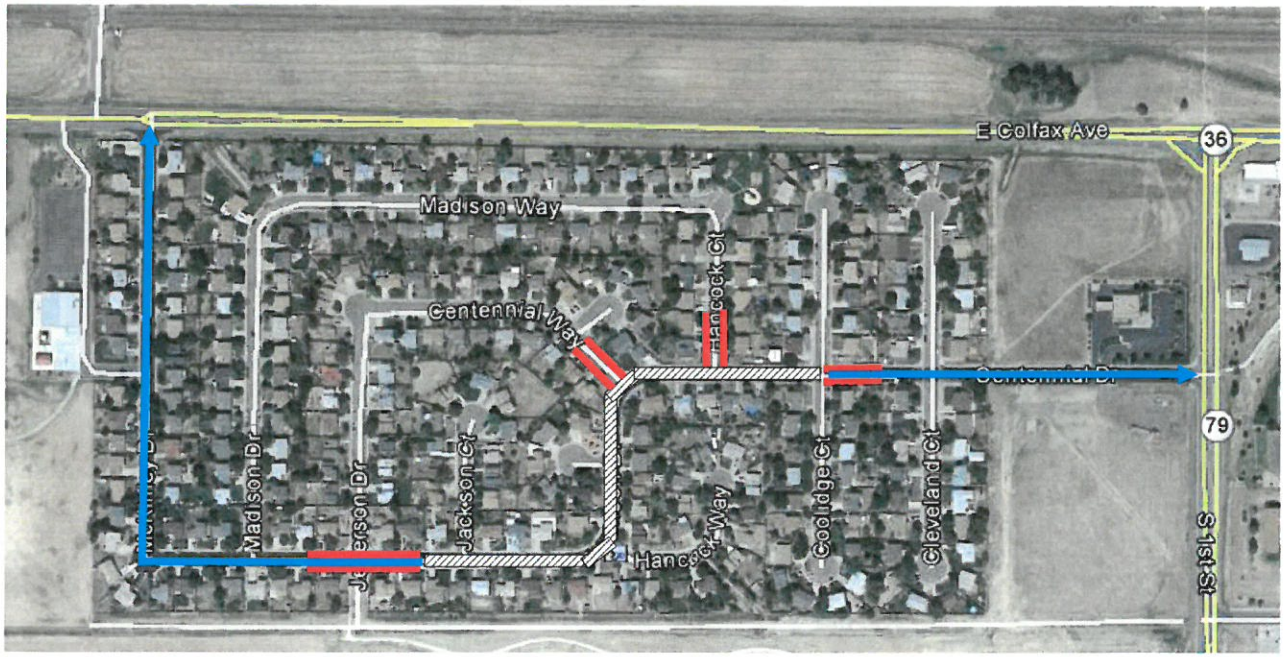
2 - Road Work Ahead
2 - Type III w/ Road Closed

APPROVALS:

Town of Bennett Date

Road Work in Centennial

7/5/16 - 7/8/16



= Extra Parking

= Work Area

= Detour Route

Please use allowed parking areas and Detour Route during construction

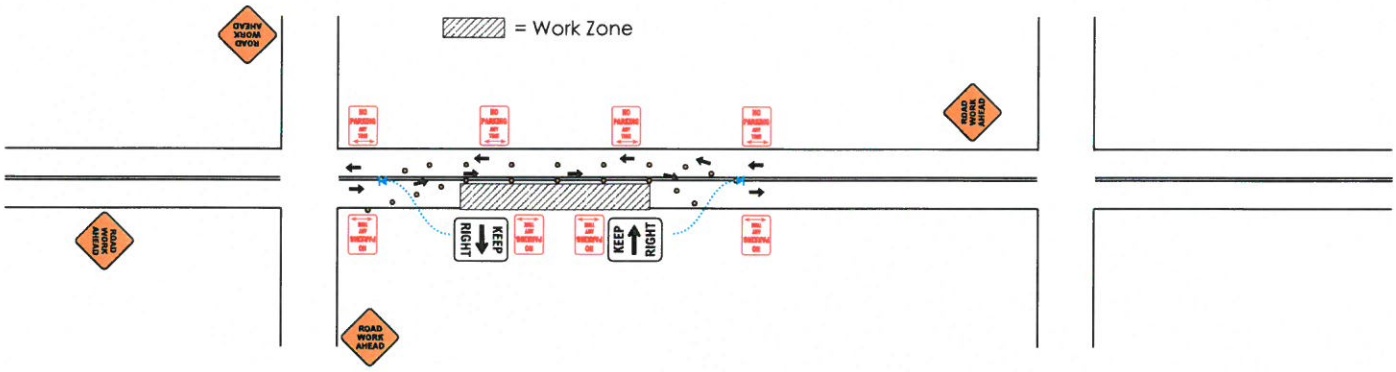
Owner: Town of Bennett
Location: Various Locations
Project Name: Bennett
Date: 5/25/16
Asphalt Specialties Company, Inc
By: Molly J. McGinnis - ATSSA TCS #30132
Asphalt Specialties Company, Inc
303-289-8555

MHT #2

Two Way Traffic
Typical Application

N

NOTES:
1) This traffic control plan is not to scale.
2) It is subject to field adjustments.
3) All devices shall conform to MUTCD standards.
4) Flaggers should assist traffic and work crews as needed during daily operations.
5) Minimum Lane width shall be 9'.



Summary Of Devices

4 - Road Work Ahead
2 - Keep Right
(varies) - No Parking Signs
(varies) - Channelizing Devices

Road Type	Distance Between Signs		
	A	B	C
URBAN (low speed)	100'	100'	100'
URBAN (high speed)	350'	350'	350'
RURAL	500'	500'	500'
EXPRESSWAY	1000'	1500'	2640'

APPROVALS:

Town of Bennett Date