

MEMORANDUM

To: Members of Council
From: John J. Busch, PE, City Engineer
Date: April 29, 2009
Re: Bainbridge Road Reconstruction – Contract 2009.18

The following list is the questions regarding the above project that were posed by Councilmen Scott, Suit and Kraus. The answers were received from various sources. Those that responded are designated as follows:

CCEO Cuyahoga County Engineer's Office
POLICE City of Solon Police Chief Godzich
FIRE City of Solon Fire Chief Shaw
TRAFFIC Traffic Task Force
ENG City Engineer John Busch

The following are the questions (1-20) submitted by Councilman Scott.

GENERAL QUESTIONS

- 1 Q: What are the limits of the project? Assuming that the limits of the project on the south side are the white stakes, does that mean that the trees up to and in some cases just beyond the white stake will be removed? Granted that there may be a slight adjustment based on a specific area, but in general is this true?**

As a suggestion, engineering should do a line drawing of the south side of the project from Huntington to Liberty showing the road centerline, curb, tree lawn, sidewalk and position of the white stake depicting the limit of the project. Add to that base drawing, an overlay showing the position of the two lane temporary road, then an overlay depicting a one lane temporary road.

CCEO: In general, from the center line of the road no trees should be disturbed beyond the white stakes.

ENG: Line drawings have been prepared as suggested showing the proposed layout, the position of the two lane temporary road and the one lane road.

- 2 Q: When does City Council have to make a decision on a one lane or two lane temporary road? Is there any chance that work would be done over the winter, such as tree removal or utility relocation?**

CCEO: The decision on one-way traffic verses two-way traffic is becoming critical because it is impacting the Right of Way negotiations. The construction of this project is anticipated to start in the spring of 2010. In order to accomplish this we need to allow the utilities enough time to relocate before the contractor can start. The utilities cannot start their work until the right of way process is complete. Therefore we are hoping to have the right of way process complete by the end of July. This would give the utilities 8 months to complete their work. The utilities have indicated that they have a huge back log of work due to the stimulus projects across the state and they would need as much time as possible to complete their work on Bainbridge Road. For this reason we are proceeding with the right of way negotiation. Utility relocation most likely would be done through the winter.

- 3 Q: If Phase I is to be done in the 2010 construction season, how long would we estimate it would take to complete the north side and flip the traffic from the south side to the north side? Would there be any difference in schedule utilizing a one way temporary road verses a two way.**

CCEO: The contractor is given a completion date for the project. The actual schedule for the phases is to be provided by the contractor at the pre-construction meeting for our approval, until then we do not know how long it would take to do the north side and move to the south side within each section.

ENG: Although the contractor would need to provide an actual schedule, assuming that Phase I would take one year to complete, it is my opinion that it would take approximately seven months to complete the north side and then flip the traffic from the south side to the north side. The only difference in schedule would be the time difference in completing a one lane temporary road verses a two lane temporary road.

- 4 Q: Based on our percentage share of the cost of the project, would the one way temporary road be a cost savings and how much?**

CCEO: There would be savings to the project but not necessarily to the city's share. Because this is a stimulus project, it is funded at the 100% level up to the established cap of \$14,000,000. If the bids come under the cap the city should not have any cost with the roadway items. The city would still have the cost of the sanitary work. (Estimated at \$1,300,000.00)

- 5 Q: I think that anyone who walks the road will agree that there will be a need for safety concrete barriers placed between Huntington and Liberty Rd. Would this be part of the project cost or something we would have to pay ourselves? What would be a good estimate of the cost?**

CCEO: Currently the plans do not require Portable Concrete Barriers (P.C.B.). It would be difficult to add P.C.B. without increasing the construction limits and drive access might be an issue.

ENG: As long as the cost of the project does not exceed the cap of \$14,000,000.00, the cost could be included. The lowest height of a P.C.B. is approximately 32". An estimate of the cost for the 32" high P.C.B. is \$20/ft. There is also a 54" high P.C.B. available. If they are installed, a site distance issue may occur for the residents coming out of their driveway.

- 6 Q: In this same area, some feel we have an obligation to the residents to do more landscaping and screening than will be allotted in the project itself. How much would you estimate we should be prepared to spend to accomplish this?**

ENG: Depending on the level of landscaping and screening, the City could expect to spend between \$5,000 to \$20,000 per property.

- 7 Q: Whether the temporary road is one way or two way, it will be new pavement and a smooth surface. What will we do to control the speed on the road?**

POLICE: All of the following items must occur in order to address this issue. Request Council by ordinance to lower the speed of the road to 25 mph and double the fines in the construction area, utilize the Police Departments flashing speed sign that also records the speeds of vehicles by time and date, and aggressively enforce traffic laws.

- 8 Q: How final are the plans at this stage? The question is could there be a change in the placement of the sidewalk to narrow the width of the project? Would such a change delay the project or add cost?**

CCEO: The final plans have been filed with ODOT. In regard to the sidewalk, the city could choose to not perform the sidewalk but grading would still be completed. Any changes to the location of the sidewalk however would be considered a major change to the plans and would require re-design of all the plan and profile sheets and cross sections and it would definitely delay the project.

ENG: It is my opinion that any changes to the plan at this time would greatly jeopardize the City's chance at receiving the stimulus money. By receiving the stimulus money, the City will not have to pay the 20% project match. Based on the project cap of \$14,000,000.00, this equates to \$2,800,000.00

- 9 Q: Must the County complete property acquisition before bidding?**

CCEO: The property acquisition does not have to be complete before bidding but it must be complete before the utilities could relocate.

- 10 Q: In any given year can we estimate how many runs EMS makes that the swiftness of the return trip is vital to the patient's survival?**

FIRE: To determine this would require a hand audit of all EMS runs where Bainbridge Road was used for response to a medical facility. Additionally, the assistance of a physician would be recommended. This process would take an estimated 6 - 8 months for proper evaluation. Please advise if you want the fire department to begin this process.

11 Q: Is it true that the County plans do not show a right turn lane Eastbound Bainbridge at Liberty? Can this be added? Any costs associated with the change? The turn lane should have been there all along.

CCEO: Yes it is true the plans do not show a right turn lane eastbound Bainbridge at Liberty.

ENG: A right turn lane could be added if the City can justify the need based on traffic counts. The justification would also need to be approved by ODOT. The cost could be included as part of the project up to the cap of \$14,000,000.00. The City would be responsible to acquire the necessary right of way.

12 Q: It has been asked a number of times, but will the affected residents have access to their driveways at all times?

CCEO: Please refer to page 20 of the construction plans which states: "Access to commercial and handicap property shall be maintained at all times. In addition the contractor shall make reasonable provisions to allow residential access at all times or otherwise allow residents to park safely within the project work limits when access is not possible; all at the approval/direction of the engineer. The maximum out of service time for any residential drive shall be ten (10) days."

ONE WAY TEMPORARY ROAD

13 Q: According to our traffic engineer, a one-way temporary road would necessitate a 300 ft. right turn lane on Liberty Rd. at Aurora Rd. What is the estimated cost of this improvement, including right of way acquisition? Could this project be completed before the onset of the Bainbridge Rd. Project Phase One?

CCEO: Based on the plans filed with ODOT there is no justification for adding a right turn lane on Liberty. If the Maintenance of Traffic Scheme is changed in a way that would justify this lane based on traffic study done by the city, we would submit this to ODOT for their review. If approved it could be eligible at project cost assuming the bids come under the cap. Anything above the cap would be the city's cost.

ENG: Based on the Traffic Engineer's memo of April 1, 2009, the cost would be approximately \$300,000.00. There would be additional cost if an integral bike lane is added. Right of way acquisition is estimated at \$25,000.00. Once a decision is made on the maintenance of traffic scheme, the design could get started if the one-way maintenance of traffic is selected.

14 Q: Our traffic engineer also has stated that there will be a conflict with detour traffic coming from the Pettibone Rd. project versus the detour traffic from the Bainbridge Rd. project. According to the present schedule with Kenmore, when will Pettibone Rd. open to two way traffic from Liberty to SOM Center Rd.?

ENG: According to Kenmore's present construction schedule, Pettibone Road between Liberty to SOM Center Road will be open to two-way traffic by June 1, 2010, weather permitting.

15 Q: If there were to be a one way temporary road, a suggestion has been made to pave the railroad right of way (the old Hooterville Line) that runs from Liberty to SOM Center Rd. for emergency vehicles to go westbound. What would this project cost? Could this be accomplished before the onset of the Bainbridge Rd. Project Phase I and be done in conjunction with the above lane widening? From a safety perspective, what happens to return runs from Sharondale, Huntington and Woodbury? Is there any way to connect either Sharondale or North Huntington to this ROW?

FIRE: Assuming the City could build the roadway but not secure easements/access, an analysis was performed using the City of Solon GIS. Measurements were taken from the furthest northwest parcel on West Sharondale to the intersection of SOM Center and the temporary railroad right of way assuming Bainbridge was one-way eastbound. The approximate distance for this trip was 2.19 miles. For comparison, measurements were also taken from the same point on West Sharondale to the intersection of SOM Center and Bainbridge Roads assuming Bainbridge Road had two-way traffic available. The approximate distance for this trip was 0.93 miles.

A similar analysis was completed for the northern most parcel on North Huntington Dr. The distance from this point, assuming Bainbridge Road was one-way eastbound and utilizing the railroad right of way, was approximately 1.8 miles. For comparison, the distance from the same northern most parcel to SOM Center, assuming Bainbridge Road was two-way, was 0.86 miles.

It can be reasonably assumed that if easements/access could be secured, the distance would be reduced.

Without access through the subdivisions to the railroad right of way, two-way Bainbridge Road traffic is the best alternative.

ENG: An aerial of a temporary road layout from North Huntington to SOM Center is attached under the Public Works Memos section. The estimated cost would be approximately \$760,000.00.

16 Q: If there were to be a one way temporary road, our traffic engineer calls for temporary traffic signals at both Liberty and Solon and Solon and Brushwood. Are both costs \$50,000 each? Who pays for the signals?

CCEO: The same idea as in No. 13 would apply here.

ENG: For estimating purposes, \$50,000.00 is a conservative estimate.

17 Q: If there were to be a one way temporary road, a suggestion has been made to have a hybrid of two-way and one-way - perhaps two-way from SOM Center to Huntington then one-way from Huntington to Liberty. Does this have any merit? Please answer the question from both the safety and construction perspectives.

POLICE: The Police Chief's April 9, 2009 memo addressed this concept, and states the following:

If an emergency occurred on Bainbridge Road east of North Huntington Drive and Liberty Road, there would be a need to have an officer at the intersection of North Huntington/Huntington Drive and Bainbridge Road and at the intersection of Sunnywood Drive and Bainbridge Road. This scenario would not take into account any Bainbridge Road residents from 35520-36160 Bainbridge Road who leaves their home during the emergency run and travels eastbound into the path of the westbound emergency vehicle. There also would be no way to guarantee that two officers would be available or in a close enough proximity to arrive and direct traffic in time for every emergency run. (See map #2)

CCEO: This could add more confusion to the construction zone. It would have to be studied in more detail.

FIRE: The two-way section would be constructed from SOM Center Road to Huntington/N, Huntington with the balance to Liberty Road being one-way eastbound. From a safety perspective, this solution would solve the challenges faced by emergency crews responding to Sharondale, West Sharondale, and North Huntington by allowing two-way traffic from Huntington to SOM Center. Additionally, the residents of Huntington and Huntington Woods subdivisions could realize benefits from this method however, this benefit would be offset by an increase in cut-through traffic as motorists find alternate routes around the detours. In addition, upon review of the plans available, this option will not be available to Huntington and Huntington Woods for 45 days during the project due to sewer reconstruction. This solution appears to transfer the problem from 14 parcels on Bainbridge Road who will have property affected to 54 parcels affected by increased traffic in Huntington and Huntington Woods. This solution should be discussed with affected residents prior to implementation.

For other runs east of Huntington where one-way traffic would be available, the most efficient route appears to be eastbound Bainbridge, southbound Liberty, and then cut through the Huntington Woods subdivision to get back to Bainbridge two-way traffic.

Responses from a point east of Huntington were then measured on the 1315. Taking a north route through Derby Downs and Brushwood was approximately 2.59 miles. Taking

a south route entering Huntington Woods off of Liberty using Woodbury to travel back to Bainbridge Road was approximately 2.64. While the distance for these two routes are approximately equal, I believe that ambulance drivers would utilize the south route through Huntington Woods subdivision due to better lighting and more straight paths with clear line of sight.

18 Q: Please answer the question as to the ability to have a one way road eastbound and for the return trip to the emergency room or hospital, have the police block the road to allow the emergency vehicle to travel westbound.

POLICE: This concept was also addressed in the Police Chief's April 9, 2009 memo which showed the following four scenarios as to where officers would need to be posted to allow an emergency vehicle to safely travel westbound on this eastbound only roadway.

If the emergency occurred on Bainbridge Road east of SOM Center Road or in the Sharondale subdivision, there would be a need to post two officers at SOM Center Road and Bainbridge Road intersection and one officer at the main Solon City Hall driveway, to control traffic wanting to travel eastbound from SOM Center and traffic exiting the main City Hall parking lot. There would also need to be a notification system in place which would advise City Hall employees parked in the rear employee parking lot that they would not be able to leave until the westbound emergency vehicle has passed. This scenario would not take into account any Bainbridge Road residents from 34185-34845 Bainbridge Road who leaves their home during the emergency run and travels eastbound into the path of the westbound emergency vehicle. (See scenario #1, total of three officers needed)

If the emergency occurred on Bainbridge Road east of SOM Center Road or any subdivisions which run off of Bainbridge Road, but prior to North Huntington/Huntington Drive, the above locations would need to be manned by officers noted in scenario #1 along with an officer at the intersection of Bainbridge Road and Sharondale Drive. This scenario would not take into account any Bainbridge Road residents from 34185 – 35480 Bainbridge Road who leaves their home during the emergency run and travels eastbound into the path of the westbound emergency vehicle. (See scenario #2, total of four officers needed)

If the emergency occurred on Bainbridge Road east of SOM Center Road or any subdivisions which run off of Bainbridge Road, but prior to Sunnywood Drive, the above locations would need to be manned by officers noted in scenario #2 along with an officer at the intersection of Bainbridge Road and North Huntington/Huntington Drive intersection. This scenario would not take into account any Bainbridge Road residents from 34185-35730 Bainbridge Road who leaves their home during the emergency run and travels eastbound into the path of the westbound emergency vehicle. (See scenario #3, total of five officers needed)

If the emergency occurred on Bainbridge Road east of SOM Center Road to Liberty Road or any subdivisions which run off of Bainbridge Road, the above locations would need to

be manned by officers noted in scenario #3 along with an officer at the intersection of Bainbridge Road and Sunnywood Drive. This scenario would not take into account any Bainbridge Road residents from 34185-36160 Bainbridge Road who leaves their home during the emergency run and travels eastbound into the path of the westbound emergency vehicle. (See scenario #4, total of six officers needed)

Upon reviewing the above option, I do not believe that it is feasible. The minimum manpower needed would be three officers with the maximum officers needed at six. With our current staffing level, we would seldom have officers available to meet these minimums. The above also shows that we would not be able to control traffic leaving the numerous residential driveways in this construction zone and the possibility of motorists heading eastbound traveling into the path of a westbound emergency vehicle.

CCEO: We would not include such a provision in our plans. This would have to be up to the city to implement.

FIRE: As stated previously, this solution has substantial risk in that police officers are not always available for this detail on an intermittent basis. Another question posed with this solution is how to stop traffic that may enter the one way road from points other than the SOM Center - Bainbridge Road intersection? Because of the number of entry points to the roadway from other roads, subdivisions, and private driveways, this solution is unfeasible.

After reviewing the options presented, it is still my opinion that two-way traffic on Bainbridge Road affects the least number of people while providing the maximum amount of safety benefit with the least cost to the City of Solon.

TWO WAY TEMPORARY ROAD

19 Q: What is the width of each lane? Is the width adequate for emergency vehicles, trash compactors and school buses?

CCEO: Two 10 feet lanes will be provided on the temporary pavement. This is the minimum lane width required for Maintenance of Traffic on this type of road.

20 Q: What is the closest distance the south edge of the two way temporary road comes to homes on Bainbridge Rd. between Huntington and Liberty?

ENG: The closest distance of a home between Huntington and Liberty to the south edge of the two way temporary road is 35900 at 58'. Please refer to map #3 of Chief Godzich's memo dated April 9, 2009 for other distances.

The following are the questions (21-23) submitted by Councilman Suit.

21 Q: Expanding on Councilman Scott's question #11 (Is it true that the County plans do not show a right turn lane Eastbound Bainbridge at Liberty? Can this be added?)

Any costs associated with the change? The turn lane should have been there all along.) Who would pay the cost?

ENG: A right turn lane could be added if the City can justify the need based on traffic counts. The justification would also need to be approved by ODOT. The cost could be included as part of the project up to the cap of \$14,000,000. The City would be responsible to acquire the necessary right of way.

22 Q: Under the scenario described in Councilman Scott's question #17, could we use temporary traffic signals?

ENG: Yes, however as stated in CCEO's response to #17, it may cause more confusion and would require further study.

TRAFFIC: The question does not specify locations for desired temporary signals but they can be placed anywhere at an approximate cost of \$50,000 each.

23 Q: What is the closest distance for ROW grading on south side of Bainbridge to the homes, in comparison to:

23.1 Two-way temporary road

23.2 Completed reconstructed Bainbridge Road?

TRAFFIC: See Chief Godzich's measurements on Map #3 of his April 9, 2009 memo.

ENG: 23.1 City Hall - 36', 35900 - 58', 38470 - 46'

23.2 City Hall - 19', 35900 - 37', 38470 - 31'

The following are the questions (24-33) submitted by Councilman Kraus.

24 Q: Emergency access for Sharondale and North Huntington. Investigate the possibility of an access road from the railroad tracks behind Sharondale from N. Huntington to Sharondale and out to Carter Lumber.

TRAFFIC: The committee agreed with the response from the Police Chief as follows:

In reviewing the area, both subdivisions have obstacles which would have to be overcome.

For the Sharondale subdivision, there is a piece of land between 6225 Sharondale Drive and 34845 West Sharondale Drive which is vacant and abuts to the old railroad track right of way. If the City could obtain the rights to this piece of property this would be a possible access to the railroad R/W.

Approximately 400 L.F. of access road.

Work involved in obtaining the necessary rights would be a question for the City Law Director.

For the North Huntington Drive Subdivision, the City would have to access property at 35395 Bainbridge off Windrush Drive and construct approximately 1,200 L.F. of roadway to access the railroad R/W.

From S.O.M. Center Road along the railroad R/W to the North Huntington access road would require construction of approximately 2,700 L.F. of roadway and would require tree clearing, removal of tracks & ties and grading and more.

25 Q: A two-way road from City Hall to Huntington for emergency access to landlocked Sharondale and N. Huntington and becoming one-way from Huntington to Liberty.

TRAFFIC: The committee agreed with the response from the Police Chief as follows:

If an emergency occurred on Bainbridge Road east of North Huntington Drive and Liberty Road, there would be a need to have an officer at the intersection of North Huntington/ Huntington Drive and Bainbridge Road and at the intersection of Sunnywood Drive and Bainbridge Road. This scenario would not take into account any Bainbridge Road residents from 35520-36160 Bainbridge Road who leave their home during the emergency run and travels eastbound into the path of the westbound emergency vehicle. There also would be no way to guarantee that two officers would be available or in close enough proximity to arrive and direct traffic in time for every emergency run.

The committee agreed with the response from the Police Chief as follows:

From a safety perspective, this solution would solve the challenges faced by emergency crews responding to Sharondale, West Sharondale, and North Huntington by allowing two-way traffic from Huntington to SOM Center. Additionally, the residents of Huntington and Huntington Woods subdivisions could realize benefits from this method however; this benefit would be negated by an increase in cut-through traffic as motorists find alternate routes around the detours. In addition, upon review of the plans available, this option will not be an option for residents in Huntington and Huntington Woods for 45 days due to sewer reconstruction. This appears to transfer an unpopular solution from 14 parcels on Bainbridge Road who will have property affected to 54 parcels affected by increased traffic in Huntington and Huntington Woods. This solution should be discussed with affected residents prior to implementation.

For other runs east of Huntington where one-way traffic would be available, the most efficient route appears to be eastbound Bainbridge, southbound Liberty, and then cut through the Huntington Woods subdivision to get back to Bainbridge two-way traffic.

Responses from a point east of Huntington were then measured on the GIS. Taking a north route through Derby Downs and Brushwood was approximately 2.59 miles. Taking

a south route entering Huntington Woods off of Liberty using Woodbury to travel back to Bainbridge Road was approximately 2.64. While the distance for these two routes are approximately equal, I believe that ambulance drivers would utilize the south route through Huntington Woods subdivision due to better lighting and more straight paths with clear line of sight.

26 Q: Address the specific safety issue to each property as to how close the temporary road would be towards their house, whether a barrier would be erected, if so, how close and at what cost.

TRAFFIC: The committee agreed with the response from the Police Chief as follows:

In reviewing this concept, the first thing that was done was to determine the current distance that Bainbridge Road is from the front of the homes. A total of seven homes between SOM Center Road and Liberty Road, which appeared to be the closest to Bainbridge Road were measured with the distance from the current edge of Bainbridge Road to the front of the home and a second measurement taken from the stake indicating the edge of the proposed two lane temporary construction roadway to the front of the home being noted. The measurements showed that the home closest to Bainbridge Road is currently 90 feet from the edge of the roadway and the construction road would place this home 68 feet from the edge of the construction roadway. In all cases, by building a two way construction road it would place the temporary approximately 22 feet closer to the homes. In checking other areas of Solon, it was found that many homes on SOM Center Road between Aurora Road and Linden Drive are approx. 30 feet from the roadway and most of the homes from Linden Drive to Ada / Arthur Road are less than 70 feet from the roadway. It was also found that several homes on Solon Road east of Erico Drive and several homes on Cannon Road are closer than 68 feet to the roadway. The cost of placing construction barriers and the additional footage of property needed to place these barriers will need to be determined by the County Engineer. (See Map #3 for a list of homes measured)

27 Q: The Administration contact individual residents that are most affected to find out their concerns.

ENG: A meeting was held Thursday, April 30, 2009 with residents most affected.

28 Q: The safety issue for each resident from Huntington to Liberty Roads

ENG: These will be discussed with the residents as part of our meeting on April 30, 2009.

29 Q: A definitive lists of which trees would be saved constructing a one- way road or a two-way road.

ENG: It is difficult to provide a definitive list. As I stated previously, the proposed project grading is defining the grading limits. Our office and the Public Works Department are willing to work with the individual residents and the contractor to attempt to minimize

tree removal. However after the construction is complete the survival of these saved trees is not guaranteed.

30 Q: A definitive list of which trees would be saved if the grading were condensed and moved toward the street.

ENG: The only way to condense the grading is to shorten the width of the tree lawns or eliminate the integral bike lanes. As was stated previously, any changes to the plan at this point would greatly jeopardize the City's chance to receive the stimulus money.

31 Q: Provide all scenarios and alternatives of the various ways an emergency vehicle could be accommodated.

TRAFFIC: As addressed in response to other questions, the Traffic Task Force agrees with the Safety Forces that maintaining two directional traffic (access) on Bainbridge Road is the best method to safely accommodate emergency vehicles in performance of their duties.

32 Q: Estimate for the costs of constructing a one-way or a two-way temporary road.

ENG: The cost of a one-way temporary road is approximately \$415,000.00. The cost for the two-way temporary road is approximately \$830,000.00.

33 Q: Cost estimates for all the requested information.

TRAFFIC: Available cost estimates have been provided in responses to individual items.