



Memorandum

To: Mr. Ron Smith, Township Supervisor

From: Paul Sandy, PE
Senior Project Manager, WSB

Date: April 5, 2023

Re: WSB Project No. 022104000 – Existing Conditions Memo

Shamrock Township entered into a professional services agreement with WSB and Associates to provide Phase 1 preliminary engineering services for a segment of Long Point Place (Bridge Road) beginning at Trunk Highway 65 and terminating at its intersection with 209th Place approximately 3,650 feet from the bridge traversing from the peninsula to the island on Big Sandy Lake. The purpose of this memorandum is to summarize existing data and reports, existing conditions, and previous correspondence about the project to better understand the corridor and what reports/studies have been done in the past. This information gathering stage is important at this beginning stage to better understand needs and priorities of the Township based on historical observations, incidents, and engineering that was completed.

WSB held a preliminary information and data gathering meeting with Township staff on March 23, 2023. Information pertinent to the project was discussed and collected between the time of this kickoff meeting to the date on this memo. The information received includes:

- A correspondence file from the original bridge construction project on Bridge Road.
- A correspondence file from the reconstruction of the original bridge on Bridge Road.
- A correspondence file regarding the flooding and issues that occurred during the 2012 high water.
- Miscellaneous surveys, plats, and ROW exhibits.
- Preliminary SEH plans for a 2014 scoped improvement project consisting of grade raises in select areas of Bridge Road.
- Workman Township Maintenance agreements.
- 2011 SEH Road Report.
- 2020 LRIP application and support letters for improvements to Bridge Road.

This data was compiled and reviewed by WSB staff and pertinent information scanned and retained to assist in preliminary design. Some of the items of relevance will be used to assist in identifying problem areas (flooding, pavement failure, etc.) and will supplement investigations being performed in the spring of 2023.

Project History

Bridge Road is a local Township road servicing properties on a peninsula and island on Big Sandy Lake. Bridge Road is considered the collector street for many side-street off shoots serving the dense residential areas of the peninsula and island. While the history of the road is not identified by date in any correspondence received, there are many issues seen with the existing Bridge Road that the Township is moving forward to remedy. They include:

- Roadway is narrow and does not provide for pedestrian accommodations - Given the relatively heavy amount of pedestrian activity in this area, there are many instances with

vehicle and pedestrian interaction, especially during the summer months. The narrow road surface and tight right of way also make for difficult snow removal operations by Township operators, and in some circumstances, the roadway becoming narrow enough to not allow two-way traffic in the project area during the winter months.

- Poor sight distances from horizontal and vertical alignments and curvature – The existing roadway alignments have many sight distance issues, which leads to unsafe traffic and pedestrian conditions.
- Tight and inconsistent right of way widths throughout - Generally speaking, the existing roadway is not centered or within the existing right of way. The right of way becomes nonexistent or extremely narrow in some areas, to the point where the Township only has prescriptive right of way for maintenance of the road surface and shoulder.
- Failing roadway surface conditions – The Township has identified many areas in which the road surface would be considered to be failing. This identified through the presence of alligator cracking, potholing, and road surfacing that has been stripped by winter maintenance operations. The Township actively tries to keep the road surface patched together through summer maintenance operations. These failing conditions are likely due to unsuitable subgrade soils.
- Flooding in specific areas of the roadway during lake high water conditions – The roadway floods in numerous areas throughout the project. The highest of floods in 2012 exhibited water over the roadway in excess of 3-feet in depth. Being that this roadway serves as the only access to ingress and egress the peninsula and island, it is a top priority of the Township to resolve these issues or mitigate roadway flooding to some degree in the future. A preliminary design performed by SEH was completed in 2014. This plan addressed the areas of flooding concern but was never completed. This preliminary design will be utilized to assist WSB in its evaluation of the potential grade raise areas. The Township, along with WSB, prepared a local road improvement program application on behalf of the Township in 2020 to look for ways to fund the necessary improvements along Bridge Road, however, the application was unsuccessful. This preliminary design and study should help with future roadway improvement funding applications in the future to assist the Township in financing the proposed improvements.
- Right of way obstacles and encroachments – The tight right of way and adjacent lake properties have led to numerous encroachments and obstacles within the right of way. This makes maintenance operations difficult, especially in the winter months.

Phase 1 Services – Preliminary Investigations and Design

To correct the above deficiencies, the Township has retained professional engineering services to provide investigatory services. The following services are a part of phase 1:

- Existing Data Collection
- Topographic survey and mapping
- Existing right of way determination and mapping
- Geotechnical exploration
- Environmental reconnaissance and wetland delineation
- Preliminary design (up to 30% design)
- Utility coordination
- Public engagement
- Preliminary cost estimate

The culmination of these investigatory services will be brought into the preliminary design phase. The preliminary design phase purpose is to look at 3 potential options for roadway rehabilitation or reconstruction. The identified roadway issues can be solved through a multitude of means, and preliminary design will consist of a few iterations of design to hone in on a publicly accepted

preferred alternative and cost estimate before moving into final design. From the preliminary data gathering and investigations, the options that will be considered during preliminary design are:

- Roadway horizontal and vertical realignment – realigning the road both horizontally and vertically to meet the 30 mph preferred design criteria set forth by the Township and to bring the new roadway into the existing right of way limits (if possible). This design speed will need to be balanced throughout the corridor with right of way constraints and needs, as 30 mph design speed may not be able to be achieved without substantial right of way acquisition. Realigning the roadway will reduce the areas with site distance issues (both vertical and horizontal).
- Grade raises in areas at high risk or potential for flooding – water resources investigations and modeling will determine high water lake levels during certain storm event criteria (2-year, 10-year, 25-year, and 100-year 24-hour storm events). The purpose of this will not be to raise the road to prevent any potential risk for flooding, however, will be to minimize future risk of flooding during the more common and frequent events that this area has experienced.
- Strategic right of way acquisition – Based on the need to raise the road in a handful of strategic areas, it will likely be impossible to get through this project without acquiring some amount of right of way. It would also be an opportune time to acquire permanent, dedicated right of way for areas of the roadway with less than 40-feet of dedicated road right of way to “clean up” ownership rights. The road should also be aligned to properly fit into existing right of ways where it currently wanders outside of those limits. This will be better defined once the preliminary right of way determination and topographic survey is completed.
- Rehabilitation of the pavement surface – Geotechnical investigations will provide a road subgrade and surface recommendation to carry the residential and commercial traffic loading (garbage trucks and school buses) on Bridge Road. Traffic counts on the roadway will be estimated to assist in this recommendation.
- Removal of obstructions from the right of way – During the design process, obstructions within the road right of way will be documented and surveyed. It would be prudent for the Township, if it hasn't already, to adopt a right of way policy in which prohibits certain obstructions within the right of way (i.e. retaining walls, septic systems, rocks, etc.) so as to keep the clear zone along the roadway clear and safe. This will also improve plowing operations along the roadway long term. If it hasn't already, the Township should also implement a swing-away mailbox policy. This road project could be the pilot project for implementation of such a program.

Preliminary design will outline 3 alternatives in which the Township can consider, all with varying degrees of increased complexity and cost. As the Township and WSB move into preliminary design, these three scenarios can be discussed. An example of this increasing complexity and cost scenarios the Township could select are:

Option 1 (lowest cost) – Pavement rehabilitation and grade raise – This option could consider the areas of the worst pavement failures as identified in the investigations for repair and reconstruction. This option would also consider the areas in need of localized grade raises to prevent localized flooding.

Option 2 (intermediate cost) – Pavement reconstruction, grade raise, and strategic realignments – This option would look at full reconstruction of the pavement through the project area (reclamation of existing surface), grade raising areas prone to localized flooding, and strategic roadway realignments of the roadway in areas of poor site distance or where the roadway meanders from the right of way.

Option 3 (highest cost) – Full roadway reconstruction to proposed 30 mph design speed (where it can be obtained). Includes realignments to meet design speed requirements, full right of way acquisition, and grade raises in areas prone to localized flooding.

Once investigations have started and results begin to filter in, these options can be reviewed with the ownership board and discussed to find the most feasible and cost-effective alternative for the Township to move forward with this roadway project.

Summary and Conclusion

From previous project correspondence, it seems as though the consensus from the Township and residents living along Bridge Road is that something needs to be done to repair and rehabilitate the roadway. The project also needs to be completed to mitigate risk of flooding in the future, as can be seen by the many letters of support received in 2020 from residents who experienced the 2012 flood.

As stated above, the gathering of existing data and studies is meant provide the project team with a general understanding of existing project information, conditions, and studies that were completed prior to preliminary design. These previous public engagement activities and studies help to inform the design to avoid and mitigate project risk as we move forward. This existing collection will also help Township in the future to reference a singular document that can express the overall project history and studies that have been previously performed.