

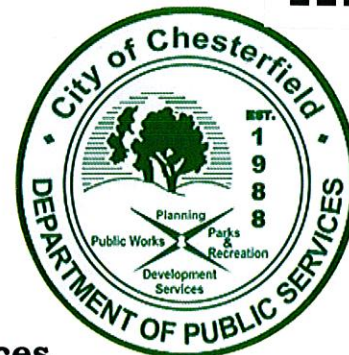
# MEMORANDUM

**DATE:** January 24, 2014

**TO:** Michael Herring, City Administrator

**FROM:** *MG* Mike Geisel, Director of Public Services

**RE:** Wilson Road, Single Lane Bridge



As you are aware, City Staff previously recommended the establishment of a “Capital Improvements and Replacement Fund”, providing a list of specific projects that would be funded by sums in the General Fund – Fund Reserve over and above the 40% reserve policy. This recommendation was presented and considered at two separate meetings of the Finance and Administration Committee. While there was general consensus that such expenses cannot be reasonably absorbed in an annual operations budget, there was not concurrence as to the recommendation of establishing a separate fund for this purpose. Further, while Staff identified a specific list of future liabilities, the Committee suggested that these projects be brought forward individually as needs dictate.

Accordingly, **I request and recommend that funding be allocated for replacement of the One-Lane Wilson Road bridge.** As was previously reported, the one-lane bridge has deteriorated significantly. There are multiple deficiencies, and we predict that within the near future, we will have to restrict the weight limit on the bridge to a point that would not allow heavy trucks to pass over it. The top slab of the culvert on the east side exhibits advanced deterioration in an area about four feet wide by seven feet long. The main reinforcing in this area has packed rust, spalling concrete and the transverse reinforcement bars are exposed. The reinforcement is in an advanced stage of corrosion. In addition to the structural issues, the culvert is inadequately sized and the invert is too high. There is a very large scour hold immediately downstream of the culvert. There is erosion occurring behind the upstream wing walls. We have placed the structure on a frequent re-inspection cycle due to its condition. While there are multiple improvements required on Wilson Road, the replacement of the one lane bridge is our highest priority and is a separable project. **The estimated cost to design and replace the one lane bridge on Wilson Road is \$565,000.** No right of way or easement acquisition is included in this cost. We are unable to determine if additional right of way or easements will be required until a preliminary design is initiated.

As such, **I recommend that this request be forwarded to the Planning and Public Works Committee for consideration. I recommend that the Wilson Road One-Lane Bridge Project be authorized, and that funding in the amount of \$565,000 be allocated from the General Fund – Fund Reserve amounts over**

**and above the 40% reserve policy established by City Council.** The information included in the 2014 budget proposal from Finance Director Brian Whittle projected a year end General Fund Balance of \$3,569,362 above the 40% reserve policy and the 2014 end of year value is projected to be in excess of \$3.4 million.

If the Planning and Public Works Committee concurs to proceed with this project, the recommendation would be forwarded to the full City Council for financial authorization and staff would immediately begin seeking professional proposals from qualified engineering firms for the design services related to the project.

**Design and Construction contracts would be separately approved by Council as those phases of the project proceed.** Depending on the intricacies of this project, we cannot provide a schedule for construction at this time. The complexity of a stream channel project and the various agencies which must be involved in the review and permitting process makes it unlikely that construction will occur during 2014, but we simply cannot make any determinations until the design process has commenced. There are no outside funding sources identified for this project.

Should you have questions or need additional information, please let me know.

Cc Brian Whittle, Finance Director  
Jim Eckrich, Public Works Director\City Engineer

ohid  
jgm  
1/24/14

**Excerpt from memorandum "Upcoming Capital Needs - July 2, 2013"**

**Wilson Road, One Lane Bridge \$565,000**

As you remember, in the early 1990's, we were awarded a grant to reconstruct and improve Wilson Road. After much public input, the project was abandoned and the City reimbursed the grant funds previously received for the engineering of the road improvements. Since that time, the Department of Public Services has maintained the road as is reasonably possible without capital funds.

We routinely inspect our bridges and major drainage culverts. At this juncture, the one lane bridge has deteriorated significantly. There are multiple deficiencies, and we predict that within three years, we will have to restrict the weight limit on the bridge to a point that would not allow trash trucks to use it. The top slab of the culvert on the east side exhibits advanced deterioration in an area about four feet wide by seven feet long. The main reinforcing in this area has packed rust, spalling of the surrounding concrete and the transverse bars are exposed and are also in an advanced stage of corrosion. In addition to the structural issues, the culvert is inadequately sized and the invert is too high. There is a very large scour hold immediately downstream of the culvert. There is erosion occurring behind the upstream wing walls. I have photos and inspection data available for review if one so desires. We have placed the structure on a three month re-inspection cycle due to its condition. While there are multiple improvements required on Wilson Road, the replacement of the one lane bridge is our highest priority and is a separable project. **The estimated cost to design and replace the one lane bridge on Wilson Road is \$565,000.** No right of way or easement acquisition is included in this cost. We are unable to determine if additional right of way or easements will be required until a preliminary design is initiated.





# MEMORANDUM

DATE: January 22, 2014  
TO: Jim Eckrich, Public Works Director/City Engineer  
FROM: Kim Streicher, Civil Engineer  
RE: Wilson Road Culvert over Wilson Tributary to Caulks Creek

As you are aware, there is a deteriorating single lane culvert on Wilson Road over the Wilson Tributary to Caulks Creek. The culvert is a single box, 10' wide by 6' tall and 22' long. There is minimal earth cover over the culvert. The culvert probably dates to the 1920's or 1930's. There are reinforced concrete wingwalls at all four corners of the culvert.

There are two areas of particular concern with this culvert.

1. The top slab of the culvert on the east side of the structure is exhibiting advanced deterioration in an area about 4' wide by 7' long (PHOTOS C,D). The main reinforcing in this area has pack rusted, spalling out the surrounding concrete and exposing the transverse bars (which are also in an advanced stage of corrosion). Several of these main reinforcing bars are **no longer structurally effective**. We do not have construction plans for this culvert, and identification of the exposed reinforcing is not possible due to the advanced deterioration of the bars. Therefore, the reserve capacity of the section cannot be reasonably estimated. Since it is a single lane bridge, traffic tends to cross near the centerline, but the area of concern extends about 5' into the drive lane, so there is not enough room to add temporary barriers (similar to Timberlake Manor). I would expect that within 3-5 years the deteriorating condition of the bridge would require lowering the weight limit to a level at which **trash trucks would not be able to cross safely**.
2. The culvert is inadequately sized. There are deep scour holes (up to 5' deep) both directly up and downstream of the culvert (PHOTOS G,H). The existing culvert floor is approximately one foot higher than where the natural channel bottom would be (PHOTOS E,F). This condition, if left unchecked, could **destabilize** the structure leading to a **washout**.

My recommendation would be to

Replace this structure with a double box or CONSPAN type culvert on the existing alignment. The new culvert should be of sufficient length to carry the full two lane section of Wilson. Extending the culvert to the east minimizes potential land acquisition as the City owns the adjoining parcel to the east. A 40' long precast box or CONSPAN would allow for traffic staging during construction. The project should also include the stabilization of the channel bottom in the scour areas, as well as replacing enough of the existing Wilson Road to tie back into a 24' typical pavement section.



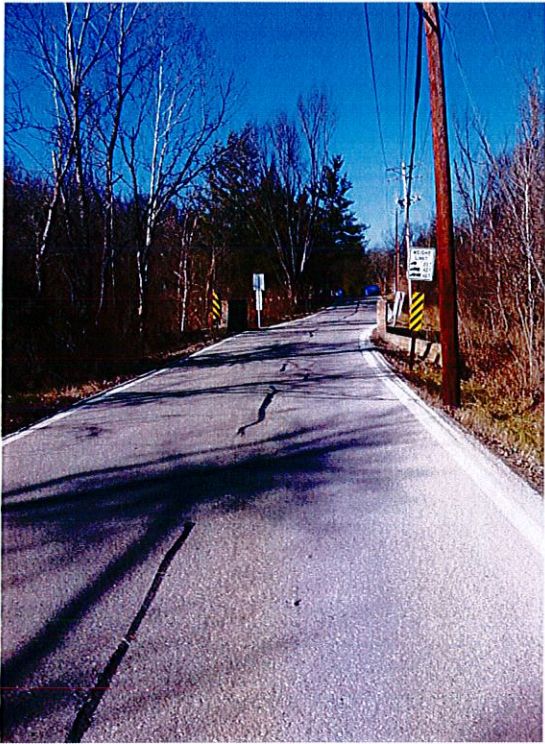


PHOTO A: LOOKING NORTH

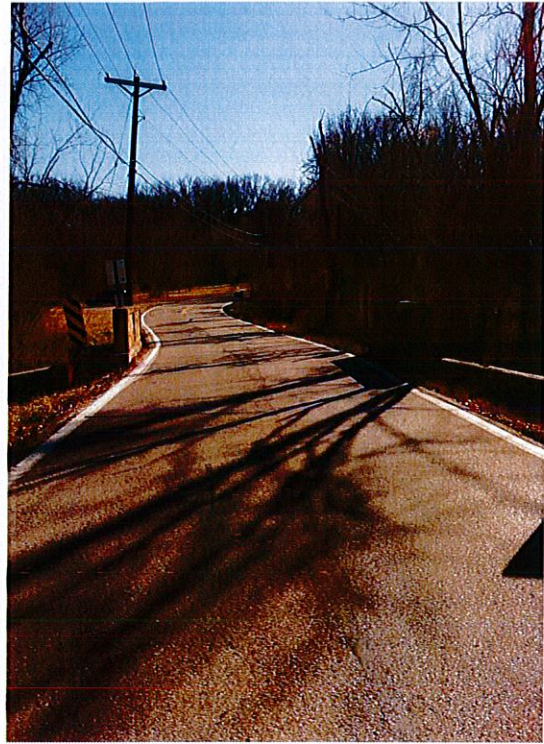


PHOTO B: LOOKING SOUTH



PHOTOS C,D: ADVANCED DETERIORATION OF TOP SLAB OF CULVERT





PHOTO E: VIEW DOWNSTREAM – INVERT TOO HIGH

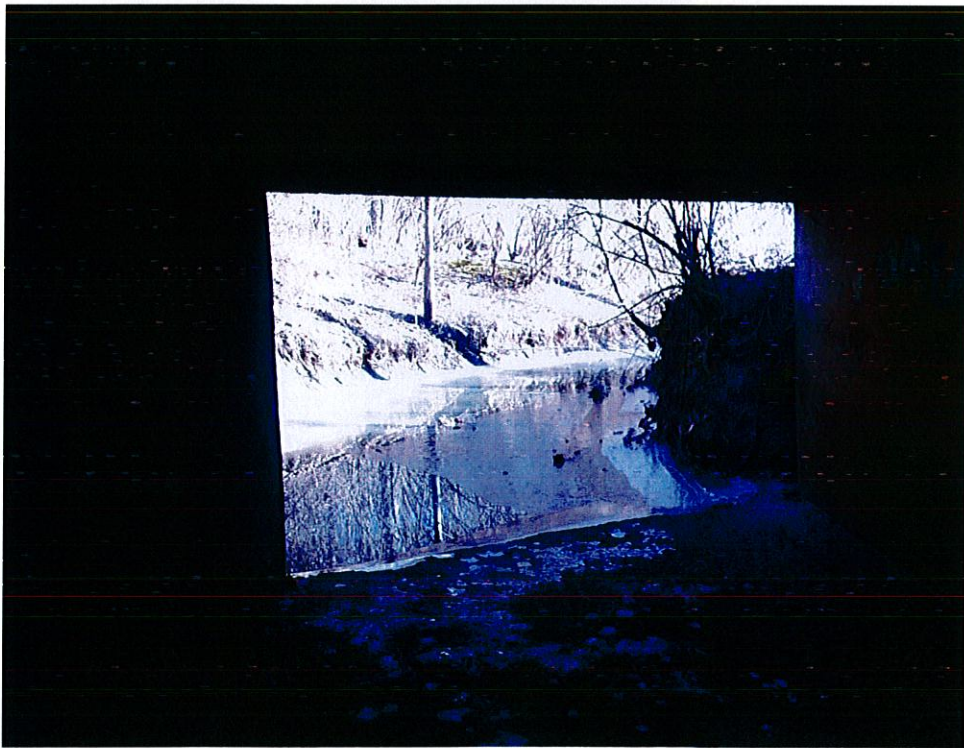


PHOTO F: VIEW UPSTREAM -INVERT TOO HIGH





PHOTO G: DOWNSTREAM SCOUR HOLE

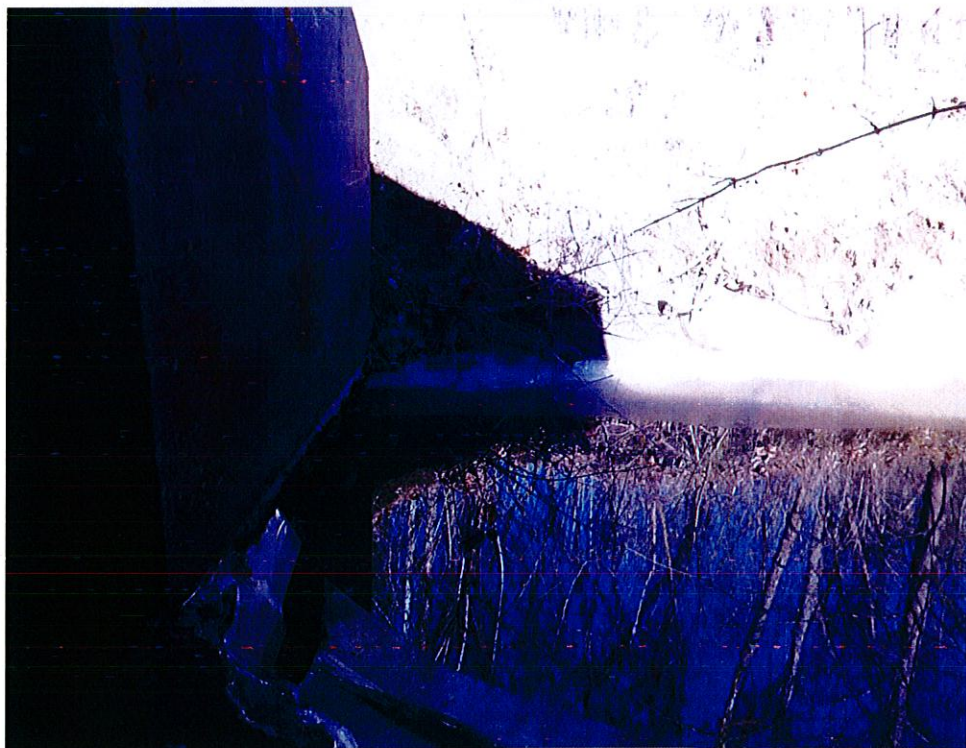


PHOTO H: UPSTREAM SCOUR HOLE