

Corroded Culvert is to Blame for Sinkhole

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“Daylighting” — bringing the culvert above ground — is too expensive; not doing anything is unsafe; and fitting a smaller pipe into the existing conduit would reduce the culvert capacity too much.

The culvert that carries Laguna Creek underground paralleling Moraga Road is made of different portions. There are about 600 feet of corrugated pipe that run in between concrete sections to the north and to the south. The metal section runs under town property and private property. The town plans to replace 125 feet of metal pipe.

Mayor Mike Metcalf asked the consultant if they found the condition of the corrugated pipe after the sinkhole to be in as bad a shape as the failed portion. They indicated that it was not in as bad a shape.

However, when that same consultant did a storm drain study for the town two years ago, the portion that failed last month had been listed as in need of repair, but no sign of complete failing was present at the time.

Metcalf, followed by Council member Phil Arth, said that not replacing the corrugated portion of the pipe in its entirety, including what is under the Rheem shopping center, does not make any sense since it is going to fail someday.

But funding is a major issue. The State has declared an emergency in Contra Costa for storm-related damage to roads and highways after the March heavy rains. It means that Moraga will be able to apply for reimbursement of the expense to fix the problem created by the storm. But other council

members had serious doubts that the portions under private property that had not failed could be covered as well.

Interim Town Manager Bob Priebe asked the council to focus on repairing the present damage and restoring the intersection, which cost will be in the area of \$3.3 million.

Metcalf insisted that options to mitigate potential failure and extend the life of the pipe in other sections of the corrugated conduit be looked at. At the same time, Public Works Director Edric Kwan will meet with state agencies to define procedures and what can be included in the repairs; the town attorney will look into rights of way and maintenance responsibility for the portions of the pipe located under private property.

Kwan plans to expedite the requests for proposal and the bidding process to be able to start work as soon as possible. All repair work is scheduled to be completed by the start of the rainy season, mid October.



Project site and culvert location

LEGEND
 — Concrete
 — Metal

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Existing Pipe Condition

- Joint offsets of up to 17.5 inches
- Joint openings were visibly obstructed by debris from the sinkhole including concrete, irrigation piping and electrical conduit.
- Water flowing into the CMP through joint offsets at a rate of 1 to 2 gallons per minute following a dry period of approximately 10 days.



Figure 8: Joint Offset with Debris Intrusion 4/27/16



Figure 9: Joint Offset of CMP at Sinkhole Location

Apparent Mode of Failure

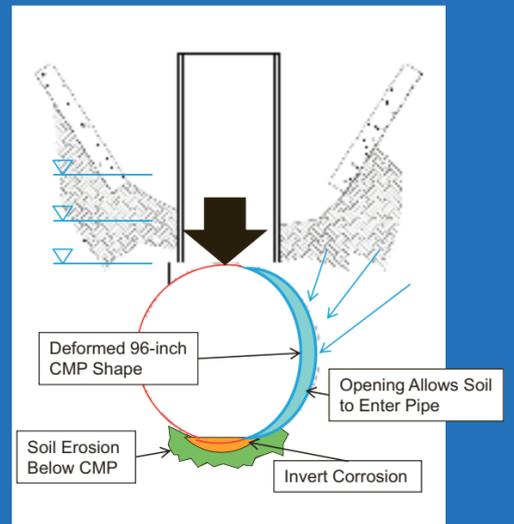


Figure 5: Animation of CMP Failure



Pipe Crown Deformation

Images provided by Town of Moraga and Schaaf & Wheeler Consulting Civil Engineers

Saturday May 14 11am - 4pm

2016 MORAGA COMMUNITY FAIRE & CAR SHOW

Join us for a day of fun at the Rheem Valley Shopping Center

Entertainment Schedule

11:00 Saint Mary's College Jazz Band	12:00 JM Jazz Band
1:00 West Coast Swing Dancers	2:00 The Rhythm Riders
3:00 C4EO Dancers	Contra Costa Chinese Cultural Enrichment Organization
3:45 Classic Car Show Trophies Awarded	

Ongoing Activities

• Classic Car Show	• Visit Dozens of Vendors: Business, Non-profit, Schools
• Local Wines and Beer	• Bounce House
• 26' Climbing Wall, Firetruck & Transit Bus	• Hy-Stykers
• Explorer Passport Prizes throughout the day	• SMC Spirit Team & Athletes
	• Food Trucks

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