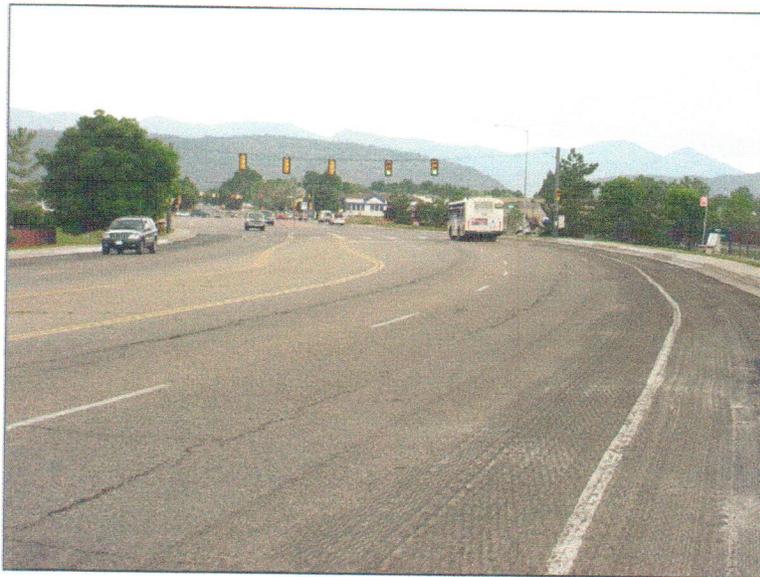


**Preliminary  
Pavement Distress Evaluation  
Proposed West Chatfield Avenue Rehabilitation  
South Kendall Boulevard to Ken Cary Road  
Jefferson County, Colorado**



**Prepared for:**

**Muller Engineering, Inc.  
777 South Wadsworth Boulevard  
Iron Gate 4, Suite 100  
Lakewood, Colorado 80226**

**Attention: Mr. Gray Clark, P.E.**

**Job No. 03-0078**

**February 17, 2004**

**GROUND**

**ENGINEERING CONSULTANTS**

41 Inverness Drive East, Englewood, CO 80112-5412  
North Office: 7393 Dahlia Street, Commerce City, CO 80022-1834

Phone (303) 289-1989  
[www.groundeng.com](http://www.groundeng.com)

Fax (303) 289-1686  
Fax (303) 289-6742

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**Preliminary  
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## **PURPOSE AND SCOPE OF STUDY**

This report presents the results of a preliminary pavement distress evaluation for the proposed West Chatfield Avenue Rehabilitation project from South Kendall Boulevard Avenue to Ken Caryl Road in Jefferson County, Colorado.

A site reconnaissance was conducted to summarize existing pavement distress of the current West Chatfield Avenue alignment for conceptual pavement rehabilitation purposes. The results of the pavement distress evaluation are presented herein.

This preliminary report has been prepared to summarize the data obtained and present our conclusions based on the proposed rehabilitation alignment.

## **PROPOSED CONSTRUCTION**

We understand that the proposed West Chatfield Avenue rehabilitation will include the widening of the existing 2 to 4 lane roadway to 4 lanes along the entire project alignment. It is our understanding that the proposed rehabilitation will have generally minimal cuts and fills on the order of 3 feet or less.

## **SITE CONDITIONS**

The section of West Chatfield Avenue planned for widening from two travel lanes to four travel lanes (two in each direction) is approximately 4.5 miles in length. On the west end of the alignment, West Chatfield Avenue is oriented in a north/south direction where it intersects with West Ken Caryl Avenue. As West Chatfield Avenue extends south of Ken Caryl, it curves to the east, intersecting South Kipling Parkway and S. Wadsworth Boulevard. The study alignment extends to South Kendall Boulevard on the east. Currently this segment of roadway is a mix of roadway types moving through primarily residential areas.

## **PAVEMENT DISTRESS OBSERVATIONS**

A field reconnaissance was conducted along the existing West Chatfield alignment. The existing pavement conditions were variable along the alignment and were categorized by approximate stationing as follows:

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- Station 387+00 to 268+00. This section of the alignment exhibits significant medium severity to severe transverse and longitudinal cracking with associated medium alligator cracking. Severe edge cracking was also observed in localized areas. See relative photographs 1 through 7 in Appendix A.
- Station 268+00 to 245+00 This section of the alignment appears to have been overlaid recently and exhibits localized low severity transverse cracking. See relative photograph 8 in Appendix A.
- Station 245+00 to 152+00 This section of the alignment exhibits medium to severe transverse and longitudinal cracking with associated medium severity alligator cracking. Severe edge cracking and medium severity potholes were also observed in localized areas. See relative photographs 9 through 13 in Appendix A.
- Approximate Station 152+00 to 145+00 This section of the alignment appears to have been overlaid recently and exhibits localized low severity transverse and longitudinal cracking.

Based on the review and depending on final grade requirements, a majority of the project alignment may be suitable for overlay construction. Removal and replacement of localized failed areas and other treatments may be needed for an effective overlay. Additional investigation to evaluate the section capacity including coring and non destructive testing using the fwd (falling weight deflectometer) is recommended in the next phase of design.

This preliminary report has been prepared for Muller Engineering Company, Inc, as it pertains to design of the West Chatfield Avenue Rehabilitation Project as described herein. It may not contain sufficient information for other parties or other purposes. Changes in project plans or schedule should be brought to the attention of the Geotechnical Engineer, in order that the preliminary recommendations may be re-evaluated and, as necessary, modified.

The preliminary conclusions in this report relied upon the site reconnaissance and literary review based on the project alignment as shown on Figure 1. Findings were dependent on the limited amount of indirect evidence obtained at the time of this

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geotechnical evaluation. Our preliminary recommendations were developed for site conditions as described above. Actual conditions exposed during the proposed field subsurface exploration program may be anticipated to differ, somewhat, from this study.

Expansive clay earth materials are anticipated to be present on the project site. These materials can shrink or swell significantly with changes in moisture content. The behavior of swelling clays is not fully understood. The swell potential of site soils and bedrock can vary significantly, both laterally and vertically. Changes in moisture can occur irregularly, as well, resulting in conditions which cannot always be predicted.

Sincerely,

**GROUND ENGINEERING CONSULTANTS, INC.**

  
Bryan K. Simpson, P.G



Reviewed by James B. Kowalsky, P.E.

**Appendix A**  
**Pavement Distress Photographs**

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**Photograph 1 Approximate Station 379+00: View Northeast. Medium to severe transverse and longitudinal cracking with associated alligator cracking.**



**Photograph 2 Approximate Station 378+50: View east. Medium to severe transverse cracking.**

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**Photograph 3** Approximate Station 371+00: View northeast. High severity edge cracking.



**Photograph 4** Approximate Station 370+75: View southeast. Medium to high severity transverse and longitudinal cracking.

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**Photograph 5 Approximate Station 351+00: View south. Medium to high severity transverse and longitudinal cracking.**



**Photograph 6 Approximate Station 351+00: View south. Medium to high severity transverse and longitudinal cracking with associated alligator cracking.**

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**Photograph 7** Approximate Station 279+00: View southwest. Medium to high severity transverse and longitudinal cracking with associated alligator cracking.



**Photograph 8** Approximate Station 264+00: View south. Isolated low severity transverse crack.

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**Photograph 9** Approximate Station 235+00: View southeast. Medium severity pot holes with associated medium to high severity transverse and longitudinal cracking.



**Photograph 10** Approximate Station 218+00: View southwest. Medium severity pot holes with associated medium to high severity transverse and longitudinal cracking.

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**Photograph 11 Approximate Station 198+50:** View south. Medium severity potholes with associated medium to high severity transverse, longitudinal and alligator cracking.



**Photograph 12 Approximate Station 198+25:** View southwest. High severity edge cracking.

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**Photograph 13 Approximate Station 175+00: View west. High severity edge cracking with associated medium to high severity transverse and longitudinal cracking.**