

MATERIALS REPORT
FOR THE
PROPOSED CONSTRUCTION OF
LEXINGTON AVENUE
FROM FARQUHAR AVENUE
TO KATELLA AVENUE
LENGTH: 0.25 MILE
JULY 1995

SUBMITTED TO: M.V. ROLLINGER, DIRECTOR OF PUBLIC SERVICES
CITY OF LOS ALAMITOS

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I. GENERAL

This report, requested by the City of Los Alamitos in a letter dated May 23, 1995, contains the results of a subsurface investigation and laboratory analysis of soils along Lexington Avenue from Farquhar Avenue to Katella Avenue.

Lexington Avenue is a local residential street which also provides access to the entrance to the Los Alamitos Armed Forces Reserve Center (LAAFRC) at Farquhar Avenue. A Traffic Index of 7.5 was calculated by EMA Traffic Engineering and was used for this project. These calculations were based on the Truck Traffic Counts submitted by the City.

II. EXISTING PAVEMENT

Lexington Avenue consists of one travel lane and a parking lane in each direction with a painted center line. The pavement was constructed with structural sections varying from 0.45' AC/0.60' AB to 0.50' AC/0.60' AB. According to the City, the pavement which was originally constructed sometime in the late 1940's has never had a significant rehabilitation.

The pavement throughout the project appears to be old, oxidized and brittle with patterns of constant block cracking, alligator cracking and raveling on both wheel tracts in both travel lanes. In short, the pavement in this project has failed completely.

III. SOIL ANALYSIS

Soils in this project are predominantly clayey silt with R-Values ranging from 9 to 42. Sulfate concentrations are less than 2000 ppm.

IV. EQUIVALENT STRUCTURAL SECTIONS

<u>LIMITS</u>	<u>DESIGN R-VALUE</u>	<u>T.I.</u>	<u>STRUCTURAL SECTIONS</u>
Entire project	9	7.5	0.40' AC/1.35' AB 0.90' AC/NS

V. RECOMMENDATION

Since the areas of failed pavement are extensive, we recommend using CTPM (Cement Treated Pulverized Material), a rehabilitation strategy which should provide a 20-year service life for a lower cost than standard rehabilitation methods. If, for any reason CTPM is not feasible, reconstruct the entire project with one of the recommended structural sections.

Cement Treated and Pulverized Material Method:

1. Pulverize and mix existing section to a total depth of 1.05'.
2. Regrade and haul away excess material to a depth of 0.20'.
3. Add cement and water at a rate specified by the OCEMA Materials Lab (assume 6% by dry weight for bidding purposes) and remix to a total depth of 0.85'.
4. Compact to grade required.
5. Cure cement treated base by protecting from drying and from traffic for three days.
6. Then, place a 0.15' ARHM (Asphalt Rubber Hot Mix) levelling course.
7. Finally, overlay entire street with 0.15' ARHM.

If for some reason the City cannot reconstruct this pavement at this point, bear in mind the following:

1. Since the pavement has already failed, squeezing another year or two or three of service out of the existing pavement may be the best choice from an economic perspective. In that case, perform only that maintenance which is absolutely necessary during those remaining years.
2. Placing an overlay (0.15' ARHM or 0.15' AC/fabric) on the failed pavement is not cost effective because it will at best provide as much as five years of service -- contrasted with the twenty years of service reconstruction will provide. Moreover, at the end of five years, you will still have to pay for reconstruction.

The following are the cost analyses for the reconstruction of Lexington Avenue:

New AC/AB alternate section (0.40' AC/1.35' AB)	
Excavate existing AC/AB to a depth of 1.75' (1.75') (\$5.00/cy) (1/27) =	\$0.323/sq. ft.
New AB (1.35') (1.35') (\$11.00/ton) (0.072) =	1.069/sq. ft.
New AC (0.40') (0.40') (\$28.00) (0.072) =	<u>0.806/sq. ft.</u>
	<u>\$2.198/sq. ft.</u>
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New AC/NS Alternate (0.90' AC/NS)	
Excavate existing AC & AB to a depth of 0.90' (0.90') (\$5.00/cy) (1/27) =	\$0.167/sq. ft.
New AC (0.90') (0.90') (\$28.00/ton) (0.072) =	<u>1.814/sq. ft.</u>
	<u>\$1.981/sq. ft.</u>
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Pulverize & Cement-Treat P&CT (1.05') =	\$0.540/sq. ft.
Remove 0.20' surplus material (0.20') (\$5.00/cy) (1/27) =	0.037/sq. ft.
New ARHM (0.15' base course & 0.15' finishing course) (0.30') (\$48.00/ton) (0.072) =	<u>1.037/sq. ft.</u>
	<u>\$1.614/sq. ft.</u>
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AC Overlay/Fabric Alternate (0.15' AC/fabric) (0.15') (\$28.00/ton) (0.072) =	\$0.302/sq. ft.
Fabric =	<u>0.072/sq. ft.</u>
	<u>\$0.374/sq. ft.</u>
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ARHM Overlay Alternate (0.15') (\$48.00/ton) (0.072) =	\$0.518/sq. ft.
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VI. SPECIAL PROVISIONS

The Standard Specifications for Public Works Construction and the following Special Provisions should be used for this project.

1. Untreated base Material - OCEA Standard Plan 1804
2. Asphalt Concrete - OCEMA Standard Plan 1805
3. Earthwork - OCEMA Standard Plan 1806
95% Relative Compaction is required
4. Reinforcing Fabric
5. Cement Treated Pulverized Material (attached)