

**HUFFMAN ROAD
RECONSTRUCTION PROJECT
OLD SEWARD HIGHWAY
TO
LAKE OTIS PARKWAY**

PRELIMINARY ENGINEERING REPORT

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Prepared for:

State of Alaska
Department of Transportation
and Public Facilities
P.O. Box 196990
Anchorage, Alaska 99519-6990

Prepared by:

DOWL Engineers
4040 B Street
Anchorage, Alaska 99503
(907) 562-2000

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W.O. D56688E

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LIST OF ACRONYMS

ACMP	Alaska Coastal Management Plan
ADEC	Alaska Department of Environmental Conservation
ADOT&PF	Alaska Department of Transportation and Public Facilities
AADT	average annual daily traffic
AMATS	Anchorage Metropolitan Area Transportation Study
ATP	Anchorage Trails Plan
AWWU	Anchorage Water and Wastewater Utility
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CMS	Congestion Management System
CPQ	Coastal Project Questionnaire
EAL	Equivalent Axle Load
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ESCP	Erosion and Sediment Control Plan
FINDS	Facility Index System
FY	fiscal year
LOS	level of service
LUST	Leaking Underground Storage Tank
MOA	Municipality of Anchorage
NFS	non-frost susceptible
NPDES	National Pollution Discharge Elimination System
PAI	Potentially Affected Interest
PCM	Preconstruction Manual
RIRO	right-in, right-out
ROW	right-of-way
SOV	single-occupancy vehicle
SWPPP	Storm Water Pollution Prevention Plan
TDM	Transportation Demand Management
TSM	Transportation Systems Management
TIP	Transportation Improvement Program
UST	underground storage tank
v/c	volume to capacity

1.0 INTRODUCTION

This Preliminary Engineering Report was prepared to document and summarize the engineering analysis for the proposed improvements to Huffman Road between Old Seward Highway and Lake Otis Parkway. The analysis is based on the Alaska Department of Transportation and Public Facilities (ADOT&PF) 3R methods as stated in the Pre-Construction manual Section 11-12. The engineering analysis, results of the public involvement process, and environmental documentation will be used by decision-makers and engineers in the follow-on stages of planning, funding, and detailed design. Huffman Road is located in south Anchorage and serves as a collector that connects the residential areas of the Anchorage Hillside to two major north-south arterials of the Anchorage Bowl (Old and New Seward Highways). Attachment A includes a vicinity map.

The development of four alternatives for improvements to Huffman Road has been accomplished through analysis of existing conditions, accident data, current design criteria, future traffic, construction cost, public input, and environmental considerations. Alternatives range from leaving the road as it currently exists (no build) to expanding the corridor to five lanes with curb and gutter, sidewalks and separated trails. All of the build alternatives will include improvements to sight distance, signage, lighting, and drainage.

This project is planned for design in fiscal year (FY) 2002, right-of-way (ROW) acquisition and utility relocation in FY 2004, and construction in FY 2006 per the latest Transportation Improvement Program (TIP) adopted by Anchorage Metropolitan Area Transportation Study (AMATS).

2.0 HISTORY AND BACKGROUND

A review of aerial photographs indicates Huffman Road was constructed prior to 1961. From the aerial photograph it appears to have been gravel surfaced at that time. In 1970, the construction of the New Seward Highway began. Some improvements to Huffman Road may have occurred at that time. In 1982, the overpass at New Seward Highway and Huffman Road was constructed. The grades along Huffman Road likely changed as part of that effort.

In about 1996, Huffman Road was widened west of the New Seward Highway to accommodate another lane. Grades of the existing road were not changed, only a lane was added.

3.0 DESCRIPTION OF PROJECT AND PURPOSE AND NEED

Huffman Road within the project corridor is designated as a collector in the Central Region Traffic Report. Based on traffic counts performed by DOWL Engineers (DOWL) and ADOT&PF in August 2000, the average annual daily traffic (AADT) west of the New Seward Highway is about 13,100 and is about 14,000 east of the New Seward Highway. Huffman Road generally slopes to the west with an average slope of about 2.0 percent and a maximum grade of 4.6 percent. The terrain within the corridor is considered rolling.

Huffman Road provides access to an active commercial district and a growing Hillside population. The roadway at the west end of the corridor (the commercial section, New Seward Highway to Old Seward Highway) is a three-lane section with a mixture of curb and gutter (urban section) and drainage ditches (rural section). Pedestrian facilities consist of a paved sidewalk along the south side of Huffman Road between the New Seward Highway and Lake Otis Parkway. There are also discontinuous sections of sidewalk located along the north side near the Old and New Seward Highways. The properties adjacent to the west end are predominantly commercial with driveway access to Huffman Road.

The roadway at the east end of the corridor (the residential section, New Seward Highway to Lake Otis Parkway) is a two-lane section with the exception of an eastbound left-turn lane at Lake Otis Parkway and the turn and merge lanes associated with the interchange at the New Seward Highway. Pedestrian facilities consist of a combination of discontinuous, separated trails and sidewalks along the south side of the road.

Huffman Road within the project corridor has limited pedestrian facilities, a high accident driveway at the Carrs Store, storm drainage deficiencies, and capacity limitations. The Huffman Road Reconstruction project is needed to address these issues. The purpose of this project is to identify upgrades required to enhance pedestrian and bicycle facilities, improve

access through this corridor, improve turning movement accommodation, correct drainage deficiencies, and bring Huffman Road up to current standards for alignment, grade, width, lighting, and surfacing per 3R guidelines. Capacity improvements to meet the 20 year projected traffic volumes will also be considered. Safety improvements to be considered may include left-turn lanes at major intersections, driveway modifications, improved visibility, and lighting.

4.0 DESIGN DESIGNATION/DESIGN CRITERIA

Design designations and criteria are contained in the 3R Study and Capacity Report found in Attachment B.

The project was originally designated as a rehabilitation (3R) project but has evolved into a reconstruction project. The main purpose of 3R projects is to restore the structural integrity of the roadway, but the purpose can also be to enhance safety and capacity. Design criteria for 3R projects allows existing geometric and roadway elements that do not meet current standards to remain, unless historical accidents exceed predicted values, and the upgrade to current standards is cost-effective. The 3R Study and Capacity Report (prepared as part of this project) evaluated geometric elements in accordance with the procedures in the Preconstruction Manual (PCM) Section 11-12. The analysis identified roadway improvements such as lengthening vertical curves, additional street lighting, and adding turn lanes.

5.0 EXISTING AND FUTURE DEVELOPMENT AND LAND USE

The Municipality Zoning map indicates that the zoning within the project limit is a mix of Residential, Industrial, and Business. In general, the properties located west of the New Seward Highway are zoned as Business and Industrial (i.e. B-3, PLI, B-4SL, B-4, I-1). The properties located east of the New Seward Highway are generally Residential (i.e. R-1SL, R-6, R-2A SL, R-1).

Review of the Municipal property maps and current aerial photographs suggests that there are a significant number of developed lots along Huffman Road. The east end of the project area

is undergoing intense residential development. There are only a few lots that are not developed along the project corridor and they are residential.

6.0 DESCRIPTION OF ALTERNATIVES

The following alternatives present several design options that are technically feasible. The magnitude of the improvement increases from the level found in Alternative A to the level found in Alternative D. Each of the “build” alternatives includes baseline roadway improvements for striping, signage, lighting, and drainage. Plan and profiles and typical cross-sections of the build alternatives can be found in Attachment C.

Alternative A

Alternative A is the “No Build” alternative. See Attachment C, Sheets C1 through C5.

Alternative B Descriptions - Modified Three-Lane Urban Section

West Segment - Old Seward Highway to New Seward Highway: See Attachment C, Sheets C6 through C8.

- Add curb and gutter and convert road to an urban section.
- Add 3 meters (10 feet) separated multi-use trail on the north side and 1.2 meters (4 feet) sidewalk on the south side of road.
- Eliminate the "free" right-turn lane westbound on Huffman Road at the New Seward Highway east ramps intersection.
- Conversion of Carrs Huffman Road driveway into a "right-in, right-out" (RIRO) only driveway.

East Segment - New Seward Highway to Lake Otis Parkway: See Attachment C, Sheets C8 through C10.

- Add a 4.2 meter (14 feet) two-way center, left-turn lane.

- Add curb and gutter and convert road to an urban section.
- Add a 3 meter (10 foot) separated multi-use trail on the north side and a 1.2 meter (4 foot) sidewalk on the south side of road.

Alternative C Descriptions - Three-Lane and Five-Lane Urban Section

West Segment - Old Seward Highway to New Seward Highway - Five-Lane Section: See Attachment C, Sheets C11 through C13.

- Expand to a five-lane section, including four 3.6 meter (12 foot) lanes and a 4.2 meter (14 foot) two-way center, left-turn lane.
- Add curb and gutter and convert road to an urban section.
- Conversion of Carrs Huffman Road driveway into a RIRO only driveway.
- Add 3 meter (10 foot) separated multi-use trail on the north side and a 1.2 meter (4 foot) sidewalk on the south side of road.
- Construct an additional left-turn lane for westbound traffic at the intersection of Old Seward Highway and Huffman Road.
- Modify the islands at the diamond interchange to include three through lanes for eastbound traffic on Huffman Road at the west ramps intersection and dual, left-turn lanes for eastbound Huffman road traffic at the eastern ramp intersections.

East Segment - New Seward Highway to Lake Otis Parkway - Three-Lane Section: See Attachment C, Sheets C13 through C15.

- Add a 4.2-meter (14 foot) two-way, center left-turn lane.
- Add curb and gutter and convert road to an urban section.

- Add a 3 meter (10 foot) separated multi-use trail on the north side and a 1.2 meter (4 foot) sidewalk on the south side of road.
- Conversion of Carrs Huffman Road driveway into a RIRO only driveway.
- Construct right-turn only lanes for east and westbound traffic on Huffman Road at the Lake Otis Parkway intersection.
- Interconnect the traffic signals at Old Seward Highway, Brandon Street, and the diamond interchange and perform a progression analysis during the design phase to optimize traffic movements.

Alternative D Descriptions - Five-Lane Urban Section

West Segment - Old Seward Highway to New Seward Highway: See Attachment C, Sheets C16 through C18.

- Expand to a five-lane section including four 3.6-meter (12 foot) lanes and a 4.2-meter (14 foot), two way center, left-turn lane.
- Add curb and gutter and convert road to an urban section.
- Add 1.2 meter (4 foot) sidewalks on both sides of road.
- Conversion of Carrs Huffman Road driveway into a RIRO only driveway.
- Construct an additional left-turn lane for westbound traffic at the intersection of Old Seward Highway and Huffman Road.
- Modify the islands at the diamond interchange to include three through lanes for eastbound traffic on Huffman Road at the west ramps intersection and dual, left-turn lanes for eastbound Huffman road traffic at the eastern ramp intersections.

East Segment - New Seward Highway to Lake Otis Parkway: See Attachment C, Sheets C18 through C20.

- Expand to a five-lane section including four, 3.6-meter (12 foot) lanes and a 4.2-meter (14 foot), two-way center left-turn lane.
- Add curb and gutter and convert road to an urban section.
- Add 1.2 meter (4 foot) sidewalks on both sides of road.

8.0 TYPICAL SECTIONS

Typical sections are found in Attachment C. ADOT&PF prepared a structural design for the Huffman Road in 1985. The design was based on 7,000 AADT and equivalent axle loads (EALs) of 1,997,902 for 20 year and 1,394,664 for the 15 year. The structural section for the 20-year life consists of 75 mm (3 inches) of asphalt concrete, 150 mm (6 inches) of crushed aggregate base course, 300 mm (12 inches) of borrow A, and 600 mm (24 inches) of borrow B. The structural section for the 15-year life consists of 50 mm (2 inches) of asphalt concrete, 150 mm (6 inches) of crushed aggregate base course, 300 mm (12 inches) of borrow A, and 600 mm (24 inches) of borrow B. The 20-year structural section has been used for cost estimating purposes. The final design will include a detailed pavement design calculation to confirm this design.

9.0 ENGINEERING ANALYSIS

9.1 Drainage

Stormwater runoff within the project corridor is collected and transported by a combination of open grass ditches, curb and gutter, and underground storm drain piping. Catch basins are spaced throughout the corridor to collect the runoff from the grass ditches and curb and gutter. Storm drain manholes are located at changes in pipe size or pipe direction.

In addition to collecting runoff from the roadway surface and adjacent property, the piped storm drain system carries the flow of Furrow Creek. Furrow Creek enters the piped storm

drain system on the south side of Huffman Road immediately east of the New Seward Highway overpass and is transported to an outfall immediately west of the Old Seward Highway.

Ponding of stormwater has been observed near the New Seward Highway intersections during periods of intense rainfall prompting an analysis of the capacity of the existing drainage system within the corridor. The analysis included a search for existing drainage studies, review of existing studies, analysis of capacities of the existing system versus projected flows, and recommendations for improvements.

The MOA Department of Project Management and Engineering provided four drainage reports for the Huffman Road area. One of the reports, entitled Furrow Creek, Rabbit Creek Drainage Study, was prepared in February 1983 and identifies the total area contributing runoff to the Huffman Road drainage system. The report identifies the flows associated with the 10-year storm event. These calculated flows were compared to the calculated capacity of the existing storm drain system in Huffman Road. The comparison indicates that the existing system does not have the capacity required to accommodate the 10-year design flows. Existing pipe sizes range from 760 mm (30 inches) diameter to 1,200 mm (48 inches) diameter. Calculations were performed to determine the pipe diameters that would be required to accommodate the 10-year design flows based on the pipe slopes of the existing system, and a Manning N value of 0.013 and it was found that the pipe diameters would need to be increased to an average diameter of 1,500 mm (60 inches). The Environmental Protection Agency (EPA) expressed concerns with upgrading the current drainage system. They suggested consideration of leaving the system undersized because the associated ponding of stormwater provides retention and storage.

The construction cost estimates include reconstruction of the drainage system to accommodate the 10-year design storm. The collection and transportation of storm water is similar for all of build alternatives. Storm water will be routed by a combination of curb and gutter and storm drain piping. Storm drain catch basins will be spaced throughout the project corridor to collect runoff from the curb and gutter. Further study is recommended during the

design phase to review the assumptions made in the 1983 report, assess the condition of the overall drainage basin, and confirm that the drainage basin model accurately represents the system as it currently exists. New runoff calculations should be performed using a 25-year design storm per Table 1120-1 of the PCM.

9.2 Major Structures

Major structures such as new bridges, overpasses, or large retaining walls are not currently planned for this project. Smaller retaining walls (less than 2 meters high) may be incorporated into the project during design to reduce the overall width of the facility and minimize potential ROW impacts. The small retaining walls may be necessary to protect wetlands located east of the New Seward Highway on the north side of Huffman Road.

9.3 Access Control and Driveways

Intersections and driveways are evaluated in detail in the 3R Study and Capacity Report found in Attachment B. Many of the driveways and intersections do not meet minimum sight distance requirements due to vertical alignment, trees, and other obstructions.

9.4 Traffic Analysis

A detailed 3R Study and Capacity Report was prepared for this project and is included in Attachment B for reference. That report included a speed study, an evaluation of lane and shoulder widths, vertical curves, intersection and driveway sight distance, clear zones, lighting, an accident analysis, a capacity analysis, development of design criteria and designations, and a signal warrant analysis.

The report concluded that there will be level of service (LOS) deficiencies during the 20-year design life that warrant capacity upgrades to the corridor. The recommended upgrades are reflected in the description of the alternatives found in Section 6. The 3R Study and Capacity Report compares LOS for each alternative. The accident analysis indicates that modifications to the Huffman Road Carrs driveway are warranted and recommends that this driveway be converted to a RIRO intersection.

Table 1: Existing Conditions Level Peak Hour of Service for the Current Year, the Construction Year (2006), and the Design Year (2026)

Segment	Peak Hour Volume (veh)			Volume/Capacity (v/c Ratio)			Level of Service (LOS)		
	2000	2006	2026	2000	2006	2026	2000	2006	2026
West of NSH	1097	1235	1835	0.61	0.65	0.91	D	E	E
East of NSH	899	1012	1504	0.44	0.51	0.71	D	D	E

9.5 Pedestrian Facilities

The only formal pedestrian facility within the project limits is a 2.3 meter paved sidewalk on the south side of Huffman Road between New Seward Highway and Lake Otis Parkway. There are also intermittent paved pathways located on the north side of Huffman Road between Old Seward Highway and New Seward Highway. In the areas where no formal pathway is provided, the majority of the pedestrian and bicycle movement occurs along the edge of the roadway.

The Bowman Elementary School, located at the end of Gregory Street near the east end of the project, is a destination/origin for children living along Huffman Road. A sidewalk has been constructed on the south side of Huffman Road between New Seward Highway and Lake Otis Parkway to accommodate pedestrian traffic. All build alternatives investigated and analyzed as part of this project add improved pedestrian facilities on the north and south side of Huffman Road. A need for improved pedestrian facilities along Huffman Road has been expressed by a large percentage of the participants in the public involvement process carried out as part of this project.

The Anchorage Trails Plan (ATP) recommends a separated paved multi-use pathway on the north side of Huffman Road and a separated unpaved multi-use pathway on the south side of Huffman Road. During the development of this Preliminary Engineering Report and environmental document, the recommendations of the ATP were considered and have been implemented to the extent that they are consistent with the objectives of this project and the feedback received through the public involvement process.

The following are the proposed pedestrian facilities for each alternative:

Alternatives B and C

Alternatives B and C include a 3 meter (10 foot) separated multi-use paved trail on the north side of Huffman Road and a 1.2 meter (4 foot) sidewalk on the south side throughout the project corridor. Alternatives B and C do not include the separated unpaved multi-use pathway on the south side of the road due to the increased ROW impacts that would result. Both bicycle and pedestrian traffic will be adequately served by the multi-use trail on the north side of Huffman Road, while the sidewalk on the south side of Huffman Road will better serve pedestrian traffic.

Alternative D

Alternative D includes a 1.2 meter (4 foot) sidewalk on both the north and south side of Huffman Road for the entire project corridor. The sidewalks have less ROW impact because they are built at the back of the curb. The sidewalks will serve both bicycle and pedestrian traffic, but the separated trails of Alternatives B and C serve the bicycle user better.

The paved multi-use trails incorporated into the alternatives will be designed to ADOT&PF guidelines for width, cross slopes, shoulders, elevation relative to traveled way, and proximity to traveled way. It is anticipated that the grade of the trail will approximately match the grade of the roadway throughout the project corridor. Roadway profile grades range from 1.4 percent to 4.5 percent.

9.6 Bus Turnouts

9.6.1 Transit Bus Turnouts

At one time, transit bus service was operated along Huffman Road but it is currently not being operated. The assembly has received a proposal to reinstate the transit bus service along Huffman Road. Presently, there are only two bus turnouts. One is located at Lake Otis

Parkway on the north side of Huffman Road and the other is located immediately east of Meander Drive on the south side of Huffman Road.

9.6.2 School Bus Turnouts

There are currently five school bus stops within the Huffman Road project limits. These bus stops are located at the following intersections along Huffman Road: Silver Fox Lane, Brandon Street, Hace Street, Silver Spruce Drive, and Northern Raven Drive. Participants of the public involvement process expressed a desire for bus waiting areas for children.

9.7 **Signalization and Lighting**

Traffic signals exist along Huffman Road at the following intersections: Old Seward Highway, Huffman Park Drive/Brandon Street, New Seward Highway east and west ramps, and Lake Otis Parkway.

In addition to the signalized intersection identified above, there are three unsignalized intersections that were evaluated for signal warrants: Industry Way; Hace Road (Carrs Driveway); and, Gregory Road. The 3R Study indicates the signal warrants were met at each of the signalized intersections.

Since signal warrants are met at these intersections, a LOS analysis was performed at each of these intersections as well. Based on the LOS results, the 3R Study indicates that capacity upgrades will be required in the project corridor to accommodate the design year traffic volumes at a minimum LOS C.

However, despite the results of the signal warrant analysis, the proximity of Gregory, Industry Way, and Hace Road in relation to existing traffic signals within the corridor preclude installation of traffic signals at these locations. Any benefits of signals at these locations would likely be outweighed by deterioration to traffic progression. The existing traffic signals within the corridor are spaced roughly on a quarter mile interval with 80 to 90 second cycle lengths. The signals at the diamond interchange (New Seward Highway) are interconnected, but the signals at Lake Otis Parkway, Brandon, and Old Seward Highway are

not interconnected. Progression improvements and reduced delay could likely be achieved by coordinating the signals at Old Seward Highway and Brandon with the signals at the diamond interchange.

Huffman Road is illuminated at several intersections within the project corridor. The alternatives presented may require the relocation of existing street light poles.

9.8 Preliminary Utility Study

Natural gas lines extend along the entire length of the Huffman project area. The gas line is located on the north side of Huffman Road from Old Seward Highway to just east of Industrial Way. At this location, the gas line crosses Huffman Road and continues down Silver Fox Lane. Another gas line is located on the south side of Huffman Road beginning at Brandon Street and extending to Lake Otis Parkway.

Generally, all the gas lines located on Huffman Road are outside the existing traveled way. However, the additional travel lanes proposed in Alternatives C and D will be constructed over the existing gas main at the west end of the project which could result in gas line relocation. In addition, the storm drain reconstruction identified in Section 9.1 will result in several gas line crossings that will likely require relocation.

Underground and overhead electric lines extend down the north side of Huffman Road between Old Seward Highway and Gregory Street. At New Seward Highway, the overhead electric crosses Huffman Road and extends down the south side of Huffman Road as well as the north side to the end of the project area. At Gregory Road, both the underground and overhead electric terminate on the north side of Huffman Road. It does not appear that major relocation of the electric lines will occur, but some minor relocation may be necessary on the north side of Huffman Road. The separated trail on the north side of Huffman Road has been routed to limit conflict with existing electric and telephone facilities.

Telephone service is provided along the entire length of Huffman Road within the project area. Between Old Seward Highway and Gregory Street underground and overhead telephone lines extend down the north side of Huffman Road. From Gregory Street to Lake

Otis Parkway, the telephone service is provided by overhead lines that are combined with the overhead electric service routing. Major relocation of existing telephone lines is not expected with any of the alternatives.

Cable television is located throughout the Huffman Road corridor. The major portion of cable lines are underground and located on the north side of Huffman Road. Fiber optic cable does extend from Gregory Street to Lake Otis Parkway on the south side of Huffman Road. Major relocation is not expected with any of the alternatives.

Public water and sanitary sewer is provided within the project area. There are five properties along the project corridor that have a private well and septic and one property that has a private well but is connected to city sewer. Generally, the water and sewer mains lie within the traveled way, but no major relocations are expected. Manholes may need to be adjusted to the finished elevation in some areas.

9.9 Work Zone Traffic Control

All build alternatives will be constructed while maintaining access. Some one-lane closures may be required during construction especially during reconstruction of the storm drain, final grading, and paving. Alternative routing may be used for portions of the Huffman Road construction.

9.10 Preliminary Right-of-Way Requirements and Potential Relocation

ROW information used for the evaluation of ROW impacts for this project was obtained from MOA computerized property grids. This source of information was overlaid onto the computerized aerial topographic survey provided by ADOT&PF. The property overlay was adjusted visually to best fit the topographic information and must be considered approximate only.

Slope limits of all the build alternatives were generated and plotted on the plan and profile sheets. Review of the slope limit information reveals that construction of all of the build alternatives will require localized, minimal expansion of existing ROW limits throughout the

project area. Attachment C contains plan and profile sheets of the alternatives with slope limits indicated, based on the conceptual typical cross-section. The amount of additional ROW varies for each alternative.

For the purpose of this Preliminary Engineering Report, it has been assumed that the centerline of the new road will follow the centerline of the existing road. During the final design for this project, consideration could be given to modification of the typical section that could help minimize ROW impacts. Examples of design modifications include steepening backslopes and foreslopes, the use of retaining walls at roadway margins, offsetting the centerline of the road within the existing ROW, or positioning the trails closer to the traveled way.

An analysis was performed to quantify the cost implications of purchasing ROW to accommodate the three build alternatives. The following process was used to establish ROW cost at this preliminary stage. Seven residential and four commercial properties along Huffman Road that would be impacted to the greatest degree by the roadway improvements were selected for analysis. The MOA Assessors Maps were reviewed to establish the Tax Code Identification for each of the lots. Land values were obtained by accessing the Municipal Assessors Database and an average cost per square meter was established based on this data. The average assessed value of the property was doubled to obtain a market value of the property. This increase was based on discussions with a ROW agent from the MOA. The market value was then increased by 50 percent to include the cost of property titles, platting, deed preparation, surveying, engineering support to resolve conflicts, legal consultation, and appraisal studies.

Limits of additional ROW were established by comparing the slope limits of the alternatives to the existing ROW boundaries. Areas of additional ROW were identified on the plan sheets and tallied for each alternative.

There are two parcels of land in the project corridor that appear to have an unresolved ROW status. They are both located along the south side of Huffman Road immediately west of Raven Drive. A research effort was conducted to establish the actual property boundary. The

research effort began by attempting to establish how or when the ADOT&PF obtained the 50-foot ROW shown on the MOA Grid Maps. ADOT&PF was unable to provide information pertaining to the acquisition of this ROW. A title search was performed which revealed that the title for these parcels came to Mr. Vernon Huffman by a patent from the government and no easements were attached to this patent. There was no other record of ROW take by ADOT&PF or any other agency for these two parcels. This issue will require additional research and study during the design phase. For purposes of cost estimating, it was assumed that ADOT&PF would acquire a 50-foot ROW from these two parcels to accommodate the roadway alternatives.

The largest additional ROW requirements are associated with Alternative C which includes a five-lane cross section between Old Seward Highway and New Seward Highway, snow storage area and a separated, multi-use pathway on the north side of Huffman Road, and a sidewalk on the south side. From the New Seward Highway to Lake Otis Parkway, Alternative C also requires additional ROW to provide for three lane traffic, a snow storage area and a separated multi-use paved trail on the north side of Huffman Road, and a sidewalk on the south side. The ROW requirements associated with Alternative C would impact eight commercial properties and eleven residential properties. No major relocations should be required.

The second largest ROW requirements are associated with Alternative B which includes a three-lane cross section between Old Seward Highway and Lake Otis Parkway, snow storage area and multi-use pathway on the north side of Huffman Road, and a sidewalk on the south. The ROW requirements associated with Alternative B would impact five commercial properties and eleven residential properties. No major relocations should be required.

The least additional ROW requirements are associated with Alternative D which includes a five-lane cross section between Old Seward Highway and Lake Otis Parkway, snow storage area, and sidewalks on the north and south side of Huffman Road. The ROW requirements associated with Alternative D would impact three commercial properties and three residential properties. No major relocations should be required.

Temporary construction easements will also be required in order to construct the improvements proposed in Alternatives B, C, and D. As with the additional ROW requirements, the number and size of temporary construction easements will be greatest for Alternative C due to the separated multi-use trail on the north side of Huffman Road. The reconstruction of the storm drain system will also require temporary construction easements along the south side of Huffman Road.

10.0 SOILS AND MATERIAL SOURCES

A reconnaissance geotechnical investigation was performed for this project. A copy can be found in Attachment D. Two geotechnical reports, prepared by the ADOT&PF, were found for the project corridor. The first was a 1981 report prepared for the design and construction of the Huffman Road and New Seward Highway interchange. The second was a 1988 report prepared for the upgrading of Huffman Road from Gregory Street to Elmore Road.

In general, the reports indicate that Huffman Road has approximately 100 mm (4 inches) of asphalt over 150 mm (6 inches) of base course and a gravel (non-frost susceptible [NFS]) section of about 1.2 m (4 feet). There does appear to be a conflict between TH39 from the 1981 report and TH1 from the 1988 report. Both holes were drilled near the Huffman Road and Gregory Street intersection. The 1981 report indicates that there is only 500 mm (1.5 foot) of gravel below the pavement, while the 1988 report indicates that there is 1.5 meters (5 foot) of gravel. The conclusion is that the roadway section may have been improved during the Huffman Road and New Seward Highway intersection project in 1982.

A site investigation of the project corridor indicated that the roadway is performing relatively well but does show signs of extensive wear. The only area where cracking appears to be due to frost action was from the New Seward Highway east to Gregory Road. Subsequent to this investigation, ADOT&PF performed a 37-mm (1.5-inch) pavement overlay of Huffman Road from Lake Otis Parkway to the Carrs store. This overlay occurred in the summer of 2000.

Review of aerial photographs indicates that the area north of Huffman Road between Old Seward Highway and New Seward Highway was a gravel pit from the late 1960s until the

early 1980s. East of the New Seward Highway, Huffman Road gains elevation and appears to be in an area of glacial till with isolated areas of still water deposits (silts and clays). Existing borings indicate that more than three feet of surface organics were present just east of the New Seward Highway near Furrow Creek and near the Lake Otis Parkway and Huffman Road intersection.

11.0 ENVIRONMENTAL CONSIDERATIONS

An Environmental Checklist was prepared for this project. A copy can be found in Attachment E. The Checklist included a description of existing conditions, the purpose and need for the project, a description of the proposed action, description of alternatives to the proposed action, an evaluation of material and disposal sites, right-of-way impacts, wetland and floodplain impacts, river, stream, noise, and air quality impacts, and Section 4(f)/6(f) impacts. A noise study was prepared for the project and is attached to the checklist. The narrative of the noise study can be found in Attachment G. The checklist concludes that environmental impacts associated with the proposed project are expected to be minimal and qualifying as a Categorical Exclusion per FHWA 23 CFR 771.117.

There will be no work within wetlands, flood plains or streams, there are no endangered species or known archeological sites in the corridor. The project will likely include minor ROW acquisition and possible excavation of contaminated soils at several sites at the west end of the corridor.

A “Wetland Delineation and Site Characterization Report” was prepared for this project. A copy can be found in Attachment F. The report indicates that there are “B” and “C” wetlands near the project corridor. The class “B” wetland is located at South Furrow Creek, which is just east of the New Seward Highway on the south side of Huffman Road. This is where Furrow Creek enters the storm drain. The inlet to the storm drain is located approximately 6 meters (20 feet) from the existing curb. This wetland will not be impacted by any of the alternatives.

The class "C" wetland is located at North Furrow Creek, which is on the north side of Huffman Road east of New Seward Highway. The North Fork of Furrow Creek flows through this wetland from the north to the south and enters the Furrow Creek Subdivision storm drain system through a culvert inlet. This wetland is designated as developable, but stipulations were developed which include the maintenance of a 20 meter (65 foot) setback from the creek in the northwest corner of the tract and from a spring located several hundred feet north of Huffman Road. The culvert inlet for North Furrow Creek is 8.5 meters (28 feet) from the shoulder of Huffman Road, but the distance from the shoulder to the toe of the embankment and the beginning of the wetland is generally 13 meters (43 feet). A retaining structure is proposed to avoid the impact of the separated multi-use trail proposed for Alternative B and C on the wetland. There wall would need to be approximately 60 meters (200 feet) long.

The project area between Old Seward Highway and New Seward Highway lies within the jurisdiction of the Alaska Coastal Management Plan (ACMP). This will require an ACMP consistency review to be conducted. This is a five step process that begins with the completion of a Coastal Project Questionnaire (CPQ). This process must be completed before any permits can be issued and should be completed during the design phase of the project.

Some minor and temporary impacts could result from storm water runoff during construction. These impacts would be minimized and mitigated by requiring the construction contractor to adhere to ADOT&PF Best Management Practices for storm water runoff quality. All efforts in this regard would be permitted through the U.S. EPA National Pollution Discharge Elimination System (NPDES) and the Alaska Department of Environmental Conservation (ADEC) Storm Water Pollution Prevention Plan (SWPPP) program. These measures would be taken during both the design and construction period and would cover the construction and post-construction phases of the project.

All ADOT&PF projects require the preparation of an Erosion and Sediment Control Plan (ESCP) during the design phase. Additionally, the contractor shall prepare a SWPPP prior to construction if 2.02 hectares (5.0 acres) or more of ground are to be disturbed.

An Environmental Reconnaissance Survey of Huffman Road was conducted for this project. A copy can be found in Attachment H. The purpose of the Environmental Reconnaissance Survey is to determine the potential for environmental concerns along the corridor.

Preparation of the survey included review of the following:

- A review of selected current and historical aerial photographs of the study corridor.
- Review of ENSTAR as-built drawings of the study corridor.
- Review of Anchorage Water and Wastewater Utility (AWWU) Connect Cards.
- Review of ADEC List of Contaminated Sites.
- Review of the EPA Facility Index System (FINDS) List, comprised of Federal Regulatory Compliance Databases including the EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List.
- Contaminated Sites List
- A review of the ADEC Anchorage District Office's Registered Underground Storage Tank (UST) List, List of Active Leaking Underground Storage Tank (LUST) Sites in Alaska, and the List of Permanently Closed USTs.
- Site visit of the properties in the study corridor.

There may be USTs or ASTs located at four of the residential properties within the Huffman Road project. Review of the AWWU maps and connect cards for the Huffman Road project corridor revealed five properties having private well and septic and one property having a

private well but being connected to city sewer. There are three properties that were developed prior to the water and sewer connections but are now on city utilities.

The Tesoro gas station between Old Seward Highway and New Seward Highway on the north side of Huffman Road is on the current ADEC LUST site list. Active USTs or ASTs are present at the Williams Express (formerly MAPCO), Tesoro, and the fire station located on the portion of Huffman Road west of the New Seward Highway.

Formal Environmental Site Assessments (ESAs) were prepared for four residential properties, the Tesoro gas station, the Williams Express gas station, and the Fire Station No. 9. Copies can be found in Attachment I. These reports conclude that further investigations be performed at these sites during the design phase.

12.0 CONGESTION MANAGEMENT SYSTEM ANALYSIS

A Congestion Management System (CMS) analysis was performed for this project. A copy can be found in Attachment J. The CMS analysis included an evaluation of existing and proposed Transportation Demand Management (TDM) strategies and Transportation Systems Management (TSM) strategies and included a single-occupancy vehicle (SOV) analysis per the guidelines found in Chapter IV of the CMS of the LRTP. The study concluded that the proposed expansion of the trail and sidewalk system within the corridor could encourage the use of alternative means of transportation such as walking, bicycles, and bus service and that the public involvement program likely helped make the public aware of these alternative opportunities. The study also concluded that additional travel lanes would be required to reduce congestion (as measured by LOS) to acceptable levels during the design life of the facility.

13.0 MAINTENANCE CONSIDERATIONS

ADOT&PF maintenance responsibilities for Huffman Road and associated trails will include winter sanding and plowing, spring sand clean up, clearing of vegetation, cleaning of blocked culverts, and patching of pot holes.

The reconstruction of the roadway subbase will reduce the occurrence of heaving and pavement breakup which will reduce the maintenance time spent repairing the roadway surface.

The level of maintenance will vary with each proposed alternative. The anticipated maintenance requirements are as follows:

Alternative B

It is anticipated that the addition of the separated paved multi-use trail will increase the maintenance requirements within the project corridor, such as plowing, sanding, and spring clean up.

Alternative C

Alternative C also includes a separated multi-use trail. This alternative also adds two travel lanes to the west end of the project which will increase maintenance.

Alternative D

Alternative D does not include a separated paved multi-use trail, so the trail maintenance requirement would be less when compared to Alternatives B and C. This alternative adds two travel lanes to the east end of the project.

14.0 PRELIMINARY COST ESTIMATES

Construction cost estimates were prepared for each build alternative utilizing ADOT&PF bid items. The estimated cost of ROW, utility relocation, design, construction administration, a 15 percent construction cost contingency, a 10 percent cost estimate contingency, and a 15 percent inflation factor have been added to the estimates to provide a more complete picture of project cost. See Attachment K for detailed cost estimate backup data. A summary of the estimated costs are as follows:

	Alternative B	Alternative C	Alternative D
Construction Cost	\$2,508,000	\$2,617,000	\$2,821,000
15 Percent Construction Contingency	\$376,000	\$393,000	\$423,000
Design and Construction Admin.	\$627,000	\$654,000	\$705,000
ROW	\$894,000	\$1,338,000	\$722,000
Utility Relocation	\$100,000	\$150,000	\$125,000
10 Percent Estimate Contingency	\$450,000	\$515,000	\$480,000
Inflation	\$743,000	\$850,000	\$791,000
Total Project Cost	\$5,698,000	\$6,517,000	\$6,067,000

The current AMATS TIP includes approximately \$8 million for design, ROW and utility, and construction of Huffman Road.

15.0 PUBLIC INVOLVEMENT

This project has had on-going public involvement process including: three public meetings; a project informational hotline, and a project website. Two mailing lists were developed; a General Public list and an Agency and Officials list. The General Public list includes those persons (Owners and Residents) who either own property or reside within 150 meters of the project ROW. The Agency and Officials list includes state, federal, and local resource agencies and officials who might have an interest or concern, environmental or otherwise, in the project. The Agency and Public entities on these lists form the Potentially Affected Interests (PAIs).

Approximately 380 public scoping meeting announcements were mailed to property owners and residents. Approximately 50 public scoping meeting announcements were mailed to agencies and officials. Advertising for the Public Scoping Meeting appeared in the Anchorage Daily News on August 19 and 24, 1999. DOWL contacted each of the community council chairpersons in the affected area (Huffman/O'Malley, Old Seward/Oceanview, and Bayshore/Klatt) and asked them to announce the Public Scoping Meeting date, time, and location at their monthly community council meetings.

A project hotline was established to provide updates to the public on project status and to solicit comments on the project. The hotline number is 222-ROAD which is a central number serving all three ADOT&PF hillside projects. The hotline caller is given a general introductory message and given the opportunity to comment on the Huffman Road, O'Malley Road or Abbott Road projects. The project hotline is checked daily for messages.

An e-mail address was established (huffman@dowl.com) to provide an electronic avenue for making comments. The e-mail address was included in the Public Meeting announcement, posted on the website, and was announced at the Public Meeting and Community Council Meetings. The project e-mail address is checked daily for messages.

A website was established (www.hillsideroads.com) to allow electronic access to project information. The website was announced to the public in the Hillside Roads newsletter. The website, like the project hotline, provides a link to the O'Malley and Abbott Road projects, as well as to the ADOT&PF home page. The website includes a summary of the project scope, a listing of the project team, a description of the problems to be solved, a project schedule, a listing of upcoming meeting dates, photographs of the project area, and a listing of work products available for review.

The Public Scoping Meeting was held at the Bowman Elementary School, 11700 Gregory Road, Anchorage on Thursday, August 26, 1999. The Public Scoping Meeting was an open house style format. A PowerPoint presentation was prepared and displayed on a movie screen in a scroll mode throughout the meeting. The PowerPoint presentation provided information on the project objectives and scope and the general schedule for the project, as well as introducing the key team members and their function on the project. Members of the project team were available for question/answer discussion and to document concerns of the community on this project. Aerial photographs and site photographs mounted on boards were available for review during the meeting. The aerial photos were displayed around the room where people could locate their properties and make notes regarding issues and concerns. Project comment sheets were available for written comments and project team members wrote down verbal comments received at the meeting.

The local Business Scoping Meeting was held at the Tanglewood Lakes Golf Club, 11701 Brayton Drive, Anchorage on Thursday September 23, 1999. Business and commercial property owners (primarily located between the Old and New Seward Highway) were invited to this meeting. The meeting was an open house style format. A PowerPoint presentation, similar to the one presented at the Public Scoping meeting, was prepared and presented at 2:15 PM. The PowerPoint presentation provided information on the project objectives and scope, and the general schedule for the project, as well as introducing the key team members and their function on the project.

All written and verbal responses received have been reviewed. The comments that were made more than once are listed below in descending order of occurrence to isolate the issues of most concern to the respondents. This is not the official polling process and will not necessarily dictate the specific improvements to be undertaken.

- Add sidewalks and paths along Huffman Road.
- Add a left turn on Huffman Road at Gregory Road.
- Expressed concerns about exiting Carrs southeast driveway onto Huffman Road.
- Identified concerns with “free right turn” coming off New Seward Highway southbound onto Huffman Road.
- Requested a landing on Gregory Road approach to Huffman Road (currently too steep).
- Add a right-turn lane eastbound on Huffman Road at Lake Otis Parkway.
- Expand Huffman Road to four lanes.
- Extend Huffman Road to Hillside Drive.
- Reduce number of driveways in commercial area.
- Add a right-turn lane westbound on Huffman Road at Lake Otis.

A joint Hillside Road project (Abbott Road, Huffman Road, O'Malley Road) public meeting was held on September 6, 2000 at Service High School. The meeting was an open house format with brief presentations by the project teams.

A copy of the text from the Scoping Summary Report can be found in Attachment L.

16.0 DESIGN RECOMMENDATIONS

The recommended alternative for construction is Alternative C. This recommendation is based on the geometric analysis, the safety analysis and evaluation, the capacity analysis, the public comments and concerns raised during scoping and subsequent public meetings, and the environmental documentation effort.

Alternative C includes upgrades that provide adequate LOS for the entire corridor for the design life of the project and provides a separated paved multi-use trail on the north side of the road as recommended by the ATP. Alternative B does not provide adequate LOS. Alternative D provides better LOS than Alternative C, but the additional lanes between New Seward Highway and Lake Otis Parkway would eliminate the ability to have a separated paved multi-use trail on the north side of the road.

The project cost for ROW, utility relocation, and construction of the recommended improvements is estimated at \$6,517,000. According to the latest AMATS TIP, the funding for ROW, utility relocation, and construction of the Huffman Road Project is \$8.0 million.

See Attachment L for additional recommendations from ADOT&PF and MOA.

ATTACHMENT A

VICINITY MAP

ATTACHMENT B

3R STUDY AND CAPACITY REPORT

ATTACHMENT C
PLAN AND PROFILE DRAWINGS

ATTACHMENT D
GEOTECHNICAL RECONNAISSANCE REPORT

ATTACHMENT E
ENVIRONMENTAL CHECKLIST

ATTACHMENT F
WETLANDS REPORT

ATTACHMENT G

NOISE STUDY

ATTACHMENT H

ENVIRONMENTAL RECONNAISSANCE SURVEY

ATTACHMENT I

ENVIRONMENTAL SITE ASSESSMENTS

- Four Residential Properties
- Tesoro Northstore #15
- Williams Express, 1530 Huffman Road
- Fire Station No. 9

ATTACHMENT J

**CONGESTION MANAGEMENT
SYSTEM ANALYSIS**

ATTACHMENT K
COST ESTIMATES

ATTACHMENT L
SCOPING SUMMARY REPORT

APPENDIX M

**MEMORANDUM FROM ADOT&PF AND
MUNICIPALITY OF ANCHORAGE**